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Pekka Sutela

SOCIALISM, PLANNING AND OPTIMALITY

A Study in Soviet Economic Thought

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Marjaniemi, April 1984

Pekka Sutela

Note on transliteration and notes

The International Organization for Standardization (ISO) recommendation for transliterating Russian has been followed in this work with two minor modifications. Kh is used instead of h (thus khozjajstvo, not hozjajstvo), and in names i is sometimes used instead of j (thus Nikolai, not Nikolaj). Furthermore, some names have been used in their familiar non-ISO form (thus Trotsky, not Trockij).

The following abbreviations have been used in the notes:

AER = American Economic Review
EMM = Ekonomika i matematičeskie metody
IAN = Izvestija Akademii Nauk, serija ekonomičeskaja
MEW = Marx, Karl—Engels, Friedrich (1961—68): *Werke.* Berlin: Dietz
PSS = Lenin, V. I. (1958—65): *Polnoe sobranie sočinenija.* Moskva: Izdatel'stvo političeskoj literatury
PKh = Planovoe khozjajstvo
SlRev = Slavic Review
SovStu = Soviet Studies
VAN = Vestnik Akademii Nauk
VE = Voprosy ekonomiki
VF = Voprosy filosofii

All the translations are mine.

Some articles referred to in the notes are not included in the bibliography. For the sake of clarity, transliterated Russian c and č follow v there.

INTRODUCTION

This is a study in the development of Soviet economic thought, fundamentally in the "veritable scientific revolution of great potential importance in the realm of practical affairs",[1] which, so we are told, took place in Soviet economics in the 1960's. This Mathematical Revolution, as Zauberman calls it, started with the rise of a "mathematical school" based on the Soviet and Western works of Leontief, Kantorovič, Pontrjagin, Dantzig, Wolfe and others. This new school's opposition to the traditional "antimathematical" school of Marxist-Leninist political economy as well as to traditional planning tools and procedures led to a debate — or a series of debates — between these schools. According to standard interpretation, these debates resulted in "a return of Soviet economics into the mainstream of world economics",[2] while "'political economy' has remained what it was: engrossed in its traditional hermetic exercises, it continues in its splendid isolation from modern thinking; but it now has hardly any relevance whatsoever for contemporary Soviet economic-theoretical thought in the accepted sense of these words".[3]

So the Mathematical Revolution has been taken to have been not only — or not in the first place — a question of mathematics. Another analyst has stressed, "At the heart of the 'revisionist economics' of Nemchinov, Kantorovich and others is the adaptation of the 'relative scarcity' concept throughout the entire economy. It is a move toward the adaptation of a *single* economic theory as an analytical system independent of ideological dogmas".[4] While reading Grossman, Zauberman and Bell — not to mention several others in the same vein — it seems that in the 1960's Soviet economists at long last grasped the truth expressed almost thirty years earlier by H. D. Dickinson: "The beautiful systems of economic equilibrium described by Bohm-Bawerk, Marshall and Cassel are not descriptions of society as it *is*, but prophetic visions of a socialist society of the future."[5]

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1 Grossman, G. (1975): Foreword. In Zauberman, A. (1975): *The Mathematical Revolution in Soviet Economics*, 1.

2 Ibid.

3 Zauberman, A. (1975): op.cit., 47. Note the wording at the end of the citation.

4 Bell, D. (1966): The "End of Ideology" in the Soviet Union. In *Marxist Ideology in the Contemporary World — Its Appeal and Paradoxes* (1966), 76—112, cited on p. 97.

5 Dickinson, H. D. (1939): *The Economics of Socialism*, 205 as cited in McFarlane, B. (1982): *Radical Economics*, 24.

Whether our *a priori* grounds give plausibility or not to the interpretations of Bell, Grossman and Zauberman, something very interesting obviously did take place in Soviet economic thought beginning in the early 1960's. These developments might be of interest not only to the student of the Soviet scene, but also to those interested in the wide social determinants and practical potentialities of economics as a science.

A scientific change can be approached in several different ways. A philosopher or a historian of science might ask whether a Kuhnian or a Lakatosian — or some other — frame of thought fits into whatever 'really' happened. A historian of economic thought who never succeeded in finding a Kuhnian revolution in Western economics might be anxious to look for one in the Soviet Union. An analytical economist would perhaps ask whether her or his Soviet colleagues — now, after all, part of world economic science — have contributed anything of lasting value. An ideologue would look for a fight between Marxism and Scientific Thought (or between Marxism and Vulgar Economics, perhaps). And naturally a student of the Soviet society should have a score of questions to ask. The claimed revolution is open to many kinds of research strategies.

The aim of this study is something quite humble and difficult: simply, to understand and, if possible, to interpret what happened. This is simple because "understanding" here does not mean building and testing a theory in any hard sense. But this is also difficult because "understanding" does presuppose a theory of Soviet society, of its development and of the position of economic science in it. The dilemma is resolved by means of the historical approach, found here — as often before — indispensable in Soviet studies.[6]

To start with the trivial, any change or revolution has three components: the state of affairs beforehand, the process of change and the state of affairs afterwards. In our case, the first component is essentially the traditional political economy of socialism as it had developed during the years of Soviet rule. Perhaps surprisingly, not very much is known about it. Western commentators have been inclined to dismiss it as nonsense — as if nonsense was always unimportant. No Western history of Marxist-Leninist political economy exists. Neither do the well-known and invaluable writings of, say, Dobb, Grossman, Nove and Wiles add up to an interpretative historical account. Of other recent writers, Moshe Lewin has perhaps been of the most interest to us.[7] The amount of Soviet writing in the history of economics has recently grown. In spite of its weaknesses — the

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[6] Also see Cohen, S. F. (1977): Politics and the Past: The Importance of Being Historical (Review Article). *SovStu* XXIX:1, 137—145.

[7] Lewin, M. (1974): *Political Undercurrents in Soviet Economic Debates.*

most important of which is the inability to relate doctrinal changes to their social and political backgrounds[8] — this literature has been of great use in this study.

On the other hand, the process of change, i.e. the growth of the mathematical school and its debates with the political economists, is that part of the revolution which has been most thoroughly told to Western readers. Even some monographs have been devoted to it. Zauberman's *Aspects of Planometrics* is an account of early Post-Stalin Soviet mathematical economics, while Zauberman himself and Michael Ellman have taken the story up to the beginning of the 1970's.[9] Of Zauberman's books, *The Mathematical Revolution...* is a short informal introduction, while *Mathematical Theory...* is a bulky exposition of different theories and models. Ellman's books have been both the historical and conceptual startingpoint of this study. Ellman covers the first years and basic ideas of one Soviet school of mathematical economics. This school was earlier known as the theory of optimal planning and is now called The Theory of the Optimal Functioning of the Socialist Economy (*SOFE* — sistema optimal'nogo funkcionirovanija socialističeskoj ekonomiki). Especially in its latter form, it is the basic theory of the Central Economic-Mathematical Institute of the Soviet Academy of Sciences in Moscow (*CEMI* — Central'nyj Ekonomiko-Matematičeskij Institut), led by Academician Nikolai Prokof'evič Fedorenko since its inception in 1963.

This study also concentrates on the work of this institute, the largest and most important in the Soviet Union. In so doing, this study tries to go further in history, deeper in theory and naturally nearer to the present day than Ellman could do in his pioneering work in the early 1970's. His books have been the basic reference on the foundations of optimal planning for Western readers. Much of the theory of optimal planning is here supposed to be well-known from Ellman's books or understandable because of the fundamental simplicity of the optimal planning approach. As Ellman's readers will note below, the focus of this study differs markedly from Ellman's.

The third component of the revolution, the state of affairs afterwards, has not been an object of separate study so far. Some aspects of Soviet economics in the

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[8] Also see the observations of Wittenburg, G. (1979): Zur Herausbildung und Entwicklung der Politischen Ökonomie des Sozialismus in der Sowjetunion. In 60 *Jahre Politische Ökonomie des Sozialismus*, 9—52. — An example may be in order. G. G. Bogomazov, a leading Soviet specialist in the field, deplores the fact that Stalin condemned as "talmudistic scholasticism" discussions that — according to Bogomazov — "contributed to the understanding of the essence of many basic categories of Marxist political economy", without touching upon the connection — to be discussed below — between the Stalinist approach to political economy and the Stalinist revolution. Bogomazov, G. G. (1983): *Formirovanie osnov socialističeskogo khozjajstvennogo mekhanizma v SSSR v 20—30-e gody*, 109—110.

[9] Zauberman, A. (1967): *Aspects of Planometrics*; Zauberman, A. (1975): *The Mathematical...*, op.cit.; Zauberman, A. (1976): *Mathematical Theory in Soviet Planning*; Ellman, M. (1971): *Soviet Planning Today*; Ellman, M. (1973): *Planning Problems in the USSR*.

1970's have been discussed by Cave and Vidmer.[10] Another valuable source for the students of Soviet economics is the recent volume of articles edited by Martin Cave and others.[11] Some of the fields covered in that book — like consumption research and environmental economics — are neglected in this study. But when the translation of an article is available in the Cave et al. volume, it is summarised only very briefly here.

An important monograph by Conyngham became available after this study had basically been written.[12] Conyngham also concentrates largely upon SOFE, but the scope of these two studies is different. As Conyngham studies changes in Soviet industrial management, he is mostly interested in the practical implications of SOFE. They are largely sidestepped here. Furthermore, Conyngham works with a wide definition of SOFE that is actually equal to all the descendants of optimal planning irrespective of their institutional affiliations. In so doing, Conyngham loses sight of those theoretical debates that are the core of this study.[13]

Finally, it should be noted that no attempt has been made to use the existing East European literature here, in spite of the undeniable relevance of at least some of it.[14]

The scope of the study

Understanding the Mathematical Revolution is not possible without covering all three of these aspects in this study. But does not this approach really make the topic too large for one study? Or, on the contrary, do some more or less obscure debates among Soviet economists really further our knowledge of the Soviet society? Happily enough the problems of being both too narrow-minded and too all-encompassing do seem avoidable.

The thing to remember here is that economics in the Soviet Union is different from economics in Britain or Finland. Marxism-Leninism claims to be a totality with political economy in a central role. This totality — as well as its constitutive parts — is taken to be both a guide in practice and a generalization of this practice. In this way, Marxism-Leninism claims to overcome the antagonism between normative and positive knowledge. Even though it is later concluded that

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10 Cave, M. (1980): *Computers and Economic Planning. The Soviet Experience*; Vidmer, R. (1978): *The Science of Management in the USSR. Emulation and the Role of "Americanizers".*

11 *New Directions in Soviet Economics* (1982).

12 Conyngham, W. J. (1982): *The Modernization of Soviet Industrial Management.*

13 With this wide interpretation, Conyngham has to associate SOFE with people who have forcibly criticized it — as Conyngham himself notes.

14 E.g. Markuš, J. (1978): *Teoria optimalneho planovania a fungovania socialistickej ekonomiky.*

the Soviet political economy of socialism is not science in any strict sense,[15] but pseudoscience — i.e. nonscience presenting itself as science — one commonly accepted scientific criteria is here taken to be applicable to it, too. According to this criteria, any theory should be measured in the first place, though not exclusively, against those yardsticks it sets up for itself. Applying this criteria here means concentrating on the double specification of the Soviet political economy of socialism — and of SOFE — as both positive and normative knowledge. It is thus thought that taking the object of this study to be pseudoscience does not prevent internalist criticism from being both possible and fruitful. Any corroboration this thesis may have should be found on the pages to follow. In any case, this internalist criticism is just part of the analysis to be developed below.

Proceeding from this double specification of political economy has another reason, too. The question of positive vs. normative thought has been and continues to be a central one among Soviet economists. Thus S. S. Šatalin, one of the central figures of this study, sees three phases in the economics of socialism. In the first place, it was a normative doctrine telling what a socialist economy should look like. Then with Really Existing Socialism in the Soviet Union it was decided that socialist economics should be a positive science finding out epistemologically objective economic laws (i.e. laws existing independently of consciousness). Beginning in the 1960's, Šatalin concludes, the time had come for a new normative approch, SOFE.[16]

The normative sofeists of the 1960's did not want to be regarded as normative in the sense of Utopian Socialism. Their brand of normativeness was to be founded upon positive knowledge of the laws and tendencies immanent to the socialist economy. Bringing the optimal regime to the earth — their great goal — would mean perfecting socialism to a full correspondence with its essence. And this essence, they claimed, had been found by the political economists, or their very opponents in the Mathematical Revolution.

The most important of the laws found by political economists and later made the basis of SOFE was that of optimality, or the Basic Economic Law of Socialism. While earlier studies on optimal planning and SOFE have concentrated upon the differences between political and mathematical economics, this study tries to take a close look at their relation on the general ground of Marxist-Leninist ideology. Therefore, the topic of this study might be seen to be the political economy of SOFE.

It is essential to remember that Marxists do not share the conventionalist thinking typical of many Western economists. By and large, they are scientific realists, for

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15 For the concepts of "science", "nonscience" and "pseudoscience" see Bunge, M. (1982): Demarcating Science from Pseudoscience. *Fundamenta Scientiae* III:3—4, 369—388.

16 Šatalin, S. S. (1982): *Funkcionirovanie ekonomiki razvitogo socializma*, 33—34.

whom axioms must correspond to 'reality'. As Academician Fedorenko put it in a recent discussion on the global criterion of optimality:

> When assessing the immanency of the category of the criterion to the basic traits of socialist reproduction, one must note that mathematical economists by no means started to use this category as a matter of convenience. On the contrary, the appropriateness of describing socioeconomic processes with the optimization approach results from two qualitative special traits of socialist reproduction: its planned character and the multitude of possible uses of resources.[17]

As seen in detail below, the planned character of the economy is thought to imply an orientation towards optimality in the economy. Both political economy and SOFE see socialism as an (at least potentially) optimal society. What do they mean by this and what grounds do they give for believing in this? As SOFE relies on political economy on this point, does its nonconventionalist stand hold? In a way, this is a study of the development of the idea of socialism among Soviet economists.

Perhaps it is in order to recapitulate what this study is not. It is not a history of Soviet economics, not even of mathematical economics nor of the output of CEMI; several important directions of this work are not discussed below. Neither does this study assess the contribution of sofeists to 'world economic science' or to the economic practice in the USSR. As said above, this is a study of the political economy of SOFE, of the relation between SOFE and Soviet political economy, of the idea of socialism as the optimal society in Soviet economics, and of change in Soviet economics. If earlier studies of SOFE have — to a degree at least — regarded SOFE as an alien body within Soviet economics, this study weighs the scales in the opposite direction. SOFE is regarded here — though not only — as part of Soviet Marxist thought. Contrary to interpreters like Zauberman, we have selected to concentrate on the continuity in Soviet thought. This is basically why, though SOFE only appears in Part II below, the discussion preceding that is not just a long-winded introduction. Knowing the story of Soviet political economy is necessary for understanding SOFE, too.

Sources and structure of the study

This study is based on a wide range of relevant literature and on discussions with a number of Soviet economists, some of whom often appear on the pages to follow. Because not all the literature that has been used is widely available — at least not to English-reading economists — a generous use of citations was first

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[17] Fedorenko, N. P. (1979b): Problema narodnokhozjajstvennogo kriterija optimal'nosti: uroven' razrabotki i napravlenija dal'nejšikh issledovanii. *EMM* XV:6, 1045—1055, cited on p. 1046.

thought to be appropriate. Here limitations due to space have been strict, however. Moreover, when a good summary of a certain argument is easily available in English, the summary presented here is as short as possible. Only some direct quotations have been preserved, mostly to convey the flavour of argumentation. It should be stressed that oral, nonverifiable information has only been used as general background. On all specific points the argumentation of this study is firmly based on written evidence.

The present study has three parts. Part I relates the history of the political economy of socialism from those points of view central to our theme: the nature of socialism, the relation of positiveness and normativeness in the theory of socialism and the position of economic science in socialist society. A detailed investigation of the origins of political economy of socialism is necessary here in order to understand many of the topics in the opposition of the political economists to the optimal planners and SOFE as well as the common points shared by them. At the time of the Mathematical Revolution, the political economy of socialism hardly existed as a structured body of doctrine. It was still in the process of development. This fact explains a lot about what forms the debates concerning optimal planning took. On the other hand — and of even more importance — the character of the political economy of socialism is such that it cannot really become a unified non-contradictory theory of Really Existing Socialism. This fact is of crucial importance in interpreting the rapprochement of SOFE and political economy in the 1970's, and its reasons and implications can only be grasped in a historical perspective. This perspective naturally has its great intrinsic interest, and though this study does not pretend to revolutionize the knowledge of the specialists in this fied, it hopefully offers even for them some new insights into the burden of the past within modern discourses.

Part II is an account of the rise and development of SOFE, circa 1963—1983. Here we also briefly analyse the main points of debate between mathematical and political economists. While reading part II, one should remember what this study is not: it does not cover all Soviet economics, nor all Soviet mathematical economics nor all important work done at CEMI. Part II does give a general picture of the rise and development of SOFE, but in so doing it concentrates on the general theoretical foundations or — in Soviet parlance — on the political economy of SOFE. Both the Marxist-Leninist political economy of socialism and SOFE are shown as what they are: changing and inherently controversial bodies of thought.

The last chapters, finally, abandon historical discourse for an internalist analysis of the political economy of SOFE and of its relation to traditional political economy. A conclusion briefly pulls together the most important strands of the analysis.

PART I

THE BACKGROUND

1. THE SOCIETY OF THE FUTURE

1.1. *Preliminary remarks*

The political economy of socialism, as it has developed in the Soviet Union, can only be understood as a product of the interaction between pre-revolutionary Socialist ideology, post-revolutionary economic agenda and the specific needs of the party-state of Really Existing Socialism. Furthermore, the changing relations between this doctrine and SOFE cannot be understood without remembering both the history of the political economy of socialism as such and numerous problems that were first raised decades ago but still puzzle present-day Soviet economic debates. Therefore, far from being a disproportional introduction, the first chapters of this study are an integral part of the story that is to unfold.

This study bypasses questions about a possible independent influence of ideology upon history. Its focus is elsewhere. Both the political economy of socialism (PES) and SOFE have been presented as developments of Marxism. The question asked in this chapter, then, is whether pre-revolutionary Socialist thought contained — in spite of the fact that Marx and Engels declined to supply receipts for future dining halls[1] — elements upon which a theory of socialist economy could have been built. Four varieties of Socialist thought are briefly analysed: that of Marx and Engels, German Social Democracy, Russian Populism and Russian Social Democracy.

1.2. *Marx and Engels*

Karl Marx was a student of capitalism seeking to lay bare "the economic law of motion of modern society".[2] His theory was a critical analysis of the theories of capitalist economy and of that society itself. It was definitely not about socialism.

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[1] Marx, K. (1872): Nachwort zum zweiten Auflage. *MEW* 23:25.

[2] Marx, K. (1867): Vorwort zum ersten Auflage. *MEW* 23:15—16. That emphasizing this simple fact is not redundant is seen when reading the following recent monograph: "These "laws" (of Soviet political economy — P.S.) are based on certain statements made by Marx, though contemporary critics argue, *with some justice*, that Marx was talking about the laws of capitalism, not laws of socialism" (emphasis added — P.S.). Dyker, D. (1983): *The Process of Investment in the Soviet Union*, 110.

For Marx, theory is bound to its object. Having divided human history into periods called modes of production, he took the task of finding out the specificity of capitalism.[3] He did admit that some so-called general features of production, common to all history, do exist, but only as pure abstractions without independent existence. In contradiction to much of modern economics, both Western and Soviet, Marx paid little attention to these general features, just noting that they could only be studied after finding the *differentia specifica* of each mode of production.[4] In a text written in cooperation with Marx, Engels distinguished between political economy "in the narrow" and "in the wide" senses. The former is about capitalism (and implicitly equated with the theory of Marx). As for the latter, Engels is open to two different interpretations. Political economy in the wide sense — still to be created, Engels adds — studies either different modes of production taken separately or possibly the general features of production.[5] These two interpretations were much debated in the Soviet Union during the 1920's. As if to add to the confusion, Marx every now and then seems to deny the existence of any general economic laws valid for different modes of production.[6]

Whatever the general features of production, Marx basically emphasized the object-specificity of economic theories. Different societies need different theories. Furthermore, as many modern students of Marx have concluded, he also stood for an object-specific method. In a manuscript, Marx listed four ways of perceiving reality: artistic, practical-ideal, theoretical and religious.[7] The need for any theoretical cognition only arises when the directly perceivable appearance and the essence of an object fall apart. This, Marx thought, holds for natural as well as for social sciences. The specificity of Marx's method of studying capitalism, however, goes further. His intricate analysis can be crudely sketched as follows.[8]

The surface of capitalism, formed by exchange and revenue forms, gives a systematically misleading — even if empirically valid — image of capitalist relations. Immediate producers are exploited in capitalism as well as in feudalism, but only in the former are there generalized markets where sovereign agents meet for voluntary equivalent exchange. This is the surface of capitalism hiding its exploitative essence, Marx argued. His *Capital* is structured around an attempt to show how this harmonious appearance is necessarily brought about by the basic capitalist structures. This is the *raison d'etre* for the method of Dialectics of the Concrete

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[3] E.g. Marx, K. (1868): Brief an L. Kugelmann. *MEW* 31:552, 553.

[4] Marx, K. (1857—58): *Grundrisse einer Kritik der politischen Ökonomie (Rohentwurf)*, 7; Marx, K. (1867): Das Kapital I. *MEW* 23:198.

[5] Engels, F. (1878): Anti-Dühring. *MEW* 20:136—137, 139.

[6] Marx, K. (1872): Nachwort . . ., op.cit. *MEW* 23:25—27.

[7] Marx, K. (1857—58): *Grundrisse* . . ., op.cit., 5—30.

[8] A huge amount of literature has recently accumulated on the method of Marx. See, e.g., Reichelt, H. (1971): *Zur logischen Struktur des Kapitalbegriffs bei Karl Marx*; Zeleny, J. (1973): *Die Wissenschaftslogik und "Das Kapital"*.

and the Abstract in Marx. In denying the possibility of a general scientific method, Marx stands in clear contradiction with the common Soviet use of Marx's method as the model of the economic theory of socialism.

To conclude: neither Marx's theory nor his method were meant to be applicable to socialism, and as far as they have been so used, the reasons — either good or not — must be looked for in developments after Marx. But first, the specific opinions of Marx and Engels on the future socialist society should be noted.

The socialist utopia has deep roots in Western civilization. Often of religious origins, it was made worldly in Morus and Campanella. One of the peaks of utopianism was reached in lesser Enlightenment thinkers like Morelly and Mably. For them — as well as for Rousseau, Turgot and especially Condorcet — utopia was to be the victory of human rationality. The theme of rationality has been echoed by many lated socialist utopias.

The Golden Age of Utopianism (ca. 1830 to 1848) descended from both the Enlightenment and the Romanticism of the early 19th century. Two main strands can be distinguished. Those like Fourier and Owen put their main emphasis upon moral development and human perfection in society. Saint-Simon is a prime example of those who founded their utopies upon a belief in economic and technical progress. Marx and Engels, while actually combining both currents in their thought, did not want to be placed on a par with these predecessors of theirs. Like the pupils of Fourier earlier, they claimed to have developed socialism from a utopia to science. As Marx and Engels saw it, socialism was utopian when founded upon an abstract ideal — be it human nature, rationality or economic progress — and when it was thought to be attainable without due regard to present trends and contradictions. For the Marxists, not the good will of reasonable people but class struggle was the motor of history.[9] Later these points are seen to have some perhaps unexpected applicability to SOFE (below, p. 116).

As forcibly as Marx and Engels dissociated from the utopian approach, they applauded the Utopians' criticisms of capitalism and sketches of socialism. The Utopians had produced valuable material "for enlightening the workers", *The Communist Manifesto* declared while it especially approved of the ideas about "future society, for instance, about abolishing the contradiction between town and countryside, abolishing the family, abolishing competition between individuals and wage-labour, about creating social harmony, changing the state into a mere governance of production"[10] — all essential elements of the Marxian utopia.

Thanking the Utopians was not limited to the early writings of Marx and Engels. Towards the end of his life, Engels praised "the ingenious far-sightedness"

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9 For different points of view on the Utopians see Höppner, J.—Seidel-Höppner, W. (1975): *Von Babeuf bis Blanqui*; Kolakowski, L. (1978): *Main Currents of Marxism. Vol. I: The Founders*, 182—224; Manuel, F.—Manuel, F. (1979): *Utopian Thought in the Western World.*

10 Marx, K.—Engels, F. (1848): Manifest der Kommunistischen Partei. *MEW* 4:491.

of Saint-Simon, "because of which his texts already contain the rudiments of almost all those ideas of later socialists not strictly about economics".[11] Leszek Kolakowski is, however, quite right in stressing that these similarities in the images of the future should not conceal the fact that these depictions are from totally different contexts.[12] Not only did Marx and Engels think that the change immanent to future society makes its detailed portrayal impossible,[13] but they also stressed the interdependent changing of circumstances and people with their needs and goals. This, Marx wrote of the Paris Commune, is the main reason why the working class "has no ready-made utopias to be introduced by plebiscite ... it has only to set free the elements of the new society which have already been developed in the womb of the collapsing bourgeois society".[14] In later Social Democracy, as will be seen below, these elements of the new society were to be largely equalled with the economic institutions of monopolistic capitalism. For Marx, changes in the values, knowledge and goals of people were perhaps of more importance.

In contrasting the Marxian approach to utopianism, Engels used to write about what he called the Scientific Prognoses of the future: "Our views of the differences between the future, non-capitalist and present-day society are exact inferences from historical facts and development processes, and they are, if they are not presented in connection with these facts and this development, theoretically and practically worthless."[15] This belief in the possibility of foresight was based on a conception of history as a law-bound process with direction — Entwicklung des Reichtums der menschlichen Natur als Selbstzweck[16] — though without an exactly definable goal.

All the different interpretations of Marxism before World War I — the period of interest to us — saw socialism as a way of solving contradictions brought about by the laws of capitalist development. The main features of the future could thus be seen in the present. Logically, the prognoses of Marx and Engels may be divided into two categories:[17] the axioms of socialism which would hold for any post-capitalist society and prognoses conditional upon given historical circumstances. The Marxists also made various pronouncements indicating that "an alternative to present misery is possible" and polemical remarks usually directed

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11 Engels, F. (1880): Die Entwicklung des Sozialismus von der Utopie zur Wissenschaft. *MEW* 19:196.

12 Kolakowski, L. (1978): op.cit., 218—227; Hobsbawn, E. (1982): Marx, Engels and Pre-Marxian Socialism.

13 Engels, F. (1893): Interview mit dem Korrespondenten der Zeitung "Le Figaro". *MEW* 22:542.

14 Marx, K. (1871): Der Bürgerkrieg in Frankreich. *MEW* 17:343.

15 Engels, F. (1886): Brief an E. R. Pease (Entwurf). *MEW* 36:429.

16 Marx, K. (1857—58): *Grundrisse* ..., op.cit., 387.

17 Compare Engels, F. (1873): Zur Wohnungsfrage. *MEW* 18:285; Engels, F. (1889): Brief an Conrad Schmidt. *MEW* 37:436.

towards other socialists' ideas. Obviously, the first class of prognoses contains the most important ideas of the future society.[18]

Leaving aside the questions of the revolution and of political institutions, the Marxian axioms of socialism might be tentatively divided into five groups.

1. The communist mode of production has two phases. The latter phase is communism proper, and the former was soon to be called socialism. While socialism is still "in every respect ... marked by the old society", communism proper would have developed on its own basis, would know no enslaving subordination of individuals to the division of labour, no contrasts between mental and physical labour, work would have become the first necessity of life and "all the springs of social riches will flow fuller".[19] In socialism, consumption goods would be allocated according to work done, but in communism proper, according to needs, the growth of which Marx regarded as a basic trend of historical development.[20]

This division was only presented quite late, and it is generally not possible to relate earlier writings to it. The situation is further complicated by an unclear use of the term "transition period". It is either another name for socialism or a period preceeding it.[21] Sometimes Engels saw this period as being very short.[22] Perhaps because of these unclarities, the subdivisions of the communist mode of production were generally neglected by socialists till the October Revolution.

2. Communism is the final realization of human development. All social contradictions will be overcome, whether among people or between people and nature.[23] The end of "human prehistory"[24] brings about the "total free development of every individual".[25]

3. Communism is based on highly developed forces of production, making it possible "... to diminish into a minimum the socially necessary labour-time, which is then corresponded by an artistic, scientific, etc. Ausbildung of individuals with the help of time released for everybody and the means created".[26] One important

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18 Here is an open problem in Marx-studies. If the prognoses are derived from a theory of capitalism, they should have changed with the generally acknowledged changes in Marx's theory of capitalism. But did they? This question does not seem to have been studied, thoroughly at least. See the comments of Höppner, J. (1976): Nachwort.

19 Marx, K. (1875): Kritik des Gothaer Programms. *MEW* 19:21, 28.

20 Marx, K. (1857—58): *Grundrisse* ..., op.cit., 669. Also, e.g., *MEW* 23:552; *MEW 25:827.*

21 See, e.g., Marx, K. (1875): Kritik ..., op.cit., 28.

22 Engels, F. (1894): Die Bauernfrage in Frankreich und Deutschland. *MEW* 22:494. Compare Linder, M. (1975): *Reification and the Consciousness of the Critics of Political Economy,* 62—68.

23 Marx, K. (1844): Ökonomisch-politische Manuskripten. *MEW* Ergänzungsband 1:536.

24 Marx, K. (1861): Zur Kritik der Politischen Ökonomie, Vorwort. *MEW* 13:9.

25 Marx, K. (1867): Das Kapital I, op.cit., 618.

26 Marx, K. (1857—58): *Grundrisse* ..., op.cit., 387.

part here is played by large-scale industry,[27] and another is played by the all-round development of individuals.[28]

4. The means of production would be socially owned. In *The Communist Manifesto* this is said to mean centralizing "...all means of production into the hands of the state, i.e. to the hands of the proletariat organized into a ruling class".[29] More generally, Marx emphasizes at the same time the importance both of centralization and of the voluntary association of producers: "The national centralization of means of production is going to be the natural basis for such a society which is made up as an association of free and equal producers working according to a common and rational plan."[30] Clearly Marx saw no incompatibility between "national centralization", "freedom" and a "common, rational plan".[31]

5. Communism would be a planned society. This would mean not only wiping out the power of supply and demand, but also people "again" getting power over production, exchange and their mutual relations.[32]

This utopia of Marx and Engels is clearly a crossing point of earlier socialist utopias: it contains both rationality, human perfection and economic growth. And as always in utopias, no two good goals are thought to be incompatible. This is not the place to try and derive a consistent set of rules for socialism from the writings of Marx and Engels or to show what inconsistencies they contain.[33] For the purpose of this study, it is of more importance to note two more specific points made by the Marxists.

Marx thought planning and markets to be incompatible. Neither money nor markets would exist in a planned economy.[34] The problem of allocation — one of

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27 Engels, F. (1847): Grundsätze des Kommunismus. *MEW* 4:371.

28 In early writings, like the *German Ideology*, Marx and Engels wrote of abolishing the division of labour in general, while in *Anti-Dühring* Engels wrote about "the old division of labour". It should be remembered that in the 1840's the vocabulary of Marx and Engels had not yet cristallized and "division of labour" had notably wide contents. — For an argument of the compatibility of Marxian communism with division of labour and Robbinsian scarcity see Elliott, J. (1980): Marx and Engels on Communism, Scarcity and the Division of Labour. *Economic Inquiry* XVIII:2, 275—292.

29 Marx, K.—Engels, F. (1848): Manifest..., op.cit., 481. Also *MEW* 20:261.

30 Marx, K. (1872): Ueber die Nationalisierung des Grund und Bodens. *MEW* 18:62.

31 For arguments about a contradiction between group ownership and the common good see Engels, F. (1886): Brief an A. Bebel. *MEW* 36:426. Also Marx, K. (1872): Ueber..., op.cit. — According to Selucky Marx stands for a centralized economy and decentralized politics in the future society, but this interpretation seems to read too much consistency in Marx and Engels. It also forgets that a strict separation between the economy and politics is a specific feature of capitalism for Marx. See Selucky, R. (1979): *Marxism, Socialism and Freedom.*

32 Marx, K.—Engels, F. (1846): Die Deutsche Ideologia. *MEW* 3:35. "Again" is a reference to Urkommunismus.

33 See, e.g., Nove, A. (1983): *The Economics of Feasible Socialism.*

34 Engels, F. (1878): Anti-Dühring. Op.cit., 264, 288. Also *MEW* 19:19—20.

the few general features of production mentioned by Marx — would be solved by comparing the "useful effects" of different goods to the amounts of live and dead labour needed for their production[35] — a central approach later in SOFE. Planning would take not only "bookkeeping" but also "soziale Ein- und Vorsicht".[36] Future society would have its social laws, and people would "use and thus master the laws of their own social activity ... with total competence".[37] Thus, there would be no "veil" of social appearance hindering the cognition of social essence. Therefore, no need for a social science — be it economics or any other — would exist in the communist osciety.[38] Marx did not connect the need for social science with the existence of social laws, as was done when PES was founded in the Soviet Union. Social laws would exist, theoretical social science would not. Neither was this "end of economics" connected with a disappearance of scarcity.[39]

Here is perhaps the utmost utopianism of Marx. A society with transparent social relations is certainly a worthy goal, but in denying the applicability of his theory, his method and any theory in general to the future society, Marx was actually leaving precious few guidelines for the speculations of his followers. Thus, while the point for Marx was to emphasize the dissimilarity of communism and capitalism, his immediate followers started quite naturally to stress the continuities of capitalism and beyond. This is sometimes taken as a betrayal of "authentic Marx", but he did not really leave much of a choice for any follower trying to build the mass support obviously necessary for a social transition. For that purpose, unconstrained Utopianism is not a sustainable policy. Given the Marxian approach, evolutionism was the only possibility left.

1.3. *German Social Democracy*

Marx and Engels never collected their scattered remarks on the future society made over half a century. But after socialist parties were becoming mass movements, they had to be able to provide both their supporters and adversaries with a credible picture of the final goal of socialism.[40] A very short narrative of the future society

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35 Marx, K. (1857—58): *Grundrisse* ..., op.cit., 89. Also *MEW* 32:552—553; 23:92—93; 25:197; 20:288—289. Marx does not clarify his principle any further.

36 Marx, K. (1894): Das Kapital III. *MEW* 25:859. Also *MEW* 16:11.

37 Engels, F. (1878): Anti-Dühring ..., op.cit., 264.

38 Marx, K. (1867): Das Kapital I. Op.cit., 93—94. For a discussion and criticism see Cohen, G. (1978): *Karl Marx's Theory of History. A Defense*, 326—344.

39 Compare Nove, A. (1983): op.cit., 15.

40 Compare the words of the Russian economist Tugan-Baranovskij: "Basically the Marxists understand as well as the Utopians the need for the plans of future society. The difference only is that the Utopians have created these plans for themselves, which has taken a vast amount of mental labour; but the Marxists have overtaken these ready plans for them." Tugan-Baranowsky, M. (1908): *Der moderne Sozialismus in seiner geschichtlichen Entwicklung*, 102.

was already included in the 1875 Gotha programme of unification of the German socialist party. It, however, was in several respects far from Marxian ideas, as Marx's criticism of this programme, not published until 1891, shows. One can only talk about a Marxist workers' movement, even in Germany, from the late 1870's onwards.[41] But even later utopian writers like Bellamy competed successfully in popularity with Marxist writers among the Social Democratic rank and file. This does not necessarily mean that these influences would have been all that different. It was Bellamy who compared future utopia with "the German army under von Moltke".[42] The metaphors of Social Democratic theoreticians, though also stressing order and hierarchical discipline, did not go quite that far.

August Bebel (1840—1913), a self-educated mechanic, was one of the central leaders of early Social Democracy and the author of *Die Frau und der Sozialismus* (1879), a classic of the socialist women's movement and of Social Democratic utopianism. The book was immensely popular,[43] and Bebel is a prime example of Enlightenment scientific utopianism turned into an image of socialism.

In *Die Frau* Bebel followed the work of Fourier, the topic of another monograph by Bebel, sometimes even in wording.[44] The fact that Bebel did not always take into account the criticisms of the Gotha programme by Marx is one example of the slowness with which Marxism was being adopted.[45] To the self-educated Bebel, "socialism is science applied in all fields of human activity" (p. 605). Here Bebel put special emphasis on introducing the achievements of late 19th century natural science into wide-scale practice in a rationally organized society. Productivity would rise so far that labour hours could be cut to three or four a day.

Together with science optimism, social determinism is a pillar of Bebel's belief in progress. "All social evils without exeption have their source in the social order" (p. 451). This together with the belief in the inheritance of acquired properties[46] made Bebel believe in the changability of men.

Die Frau is quite thorough about education, conditions of work, applied science and even about a scientific diet, but has very little to say about organizing the economy. Basically, everything was seen to be very simple. After the state has withered away — which Bebel supposed would not take long — municipalities and representatives of industrial branches would be the organizational basis needed. Bebel thought (as did Lenin some forty years later) that the periodical assignments of popular representatives would finally circulate among the whole population.

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41 See Gustafsson, B. (1969): *Marxism och revisionism.*

42 Cited in Manuel, F.—Manuel, F. (1979): op.cit., 764.

43 By 1895 it had reached its 26th German printing and 13th translation. Page references below are to Bebel, A. (1878): *Die Frau und der Sozialismus.*

44 Höppner, J. (1976): op.cit., 269.

45 See Tarschys, D. (1972): *Beyond the State*, 91.

46 Bebel did not regard this critical to the possibility of socialism.

Planning would be simple. First, statistics would be made of the labour force, the means of production and the needs of the population. Then the necessary production would be easily seen, and as Bebel reassures in an immortal phrase, "with a little experience the task soon becomes child's play" (p. 461). Planning would then be basically a task for statisticians. Their work would be much simplified by the fact that enough of everything would be produced, and comparing different use-values would not be necessary: "... ten minutes of social labour spent on an article are equal to ten minutes of social labour spent on another article, no more no less..." (p. 487). Here Bebel can be seen to foreshadow the later Soviet approach to the labour theory of value (below, p. 46).

Finally, Bebel's future is both centralized and decentralized. All the large cities are emptied and industrial branches select their representatives to the social decision making apparatus. On the other hand, after abolishing trade "all trading activity becomes a centralized, purely administrative activity..." (p. 469). But then, in the future society "the gratification of personal egoism and the promotion of commonweal go harmoniously hand in hand and coincide" (pp. 464—465).[47] As economic decisions would be based on the good of the people and available resources, neither would profit have any role in the future.

If the Gotha programme of 1875 was only partially Marxist, the Erfurt programme of 1891 attested to the German party being a Marxist mass party, and Engels could write that it was "totally based on modern science".[48] Engels had practically been its final superviser. The Marxism of the party, however, was centred at the top of the party. There was a powerful anti-Marxist wing, and while the rank and file was not interested in theory, the debates in the theoretical journal of the party were left to just a fraction of all the members.[49] Even the theoreticians were poorly equipped. Much of Marx's writings were still unknown, and Engels had but little trust in the abilities of present leaders and worried about the missing generation of young theoreticians.[50] The words of Victor Adler, a leader of the Austrian Social Democrats, are true also more generally: "I understand nothing of the history of surplus value and, frankly, I don't give a damn."[51]

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47 Compare above, note 31.

48 Engels, F. (1891): Zur Kritik des Gothaer Programms. *MEW* 22:231.

49 Strutynski, P. (1976): *Die Auseinandersetzungen zwischen Marxisten und Revisionisten in der deutschen Arbeiterbewegung am die Jahrhundertwende.*

50 Engels, F. (1891): Brief an A. Bebel. *MEW* 38:93; Engels, F. (1885): Brief an A. Bebel. *MEW* 36:335; Engels, F. (1889); Brief an A. Bebel. *MEW* 37:304. Kautsky's comments on the situation are in Kautsky, K. (1899): *Bernstein und das sozialdemokratische Programme*, 33.

51 Cited in Braunthal, J. (1967): *History of the International, Vol. I*, 265. During the Bernstein debates, the Russian Axel'rod pointed out that only a handful of people in the International could even follow them, not to mention actively participating. See Baron, S. (1963): *Plekhanov. The Father of Russian Marxism*, 178.

Generally,[52] the Marxism of The Second International took a negative attitude to Hegelian dialectics, often substituting it with Darwinian evolutionism. The revisionist Bernstein said that all the achievements of Marx had been made in spite of Hegel, and while Kautsky, the carrier of orthodoxy, denied this, he actually identified dialectics as a doctrine of social evolution.[53] Kautsky could talk of human society as part of nature,[54] and Bebel claimed socialism would come spontaneously.[55] While these theoreticians did not deny the role of conscious action in society, they often seemed to assert that the development of productive forces — often also identified with technics — would somehow automatically produce the political consciousness necessary for taking power.[56] Thus, very nearly at least, the coming of socialism was identified with the technical and economic processes underway in capitalism. This is clearly seen in Karl Kautsky.

The views of Karl Kautsky (1854—1938) are of special interest, as this author of the first textbook of Marxian economic theory[57] and of the theoretical part of the Erfurt programme[58] was for a long time the generally acknowledged interpreter of Orthodox Marxism. Some 150 books and articles by Kautsky had appeared in Russian by 1917.

In the Erfurt programme Kautsky takes great pains to give a responsible picture of the Social Democratic movement. It was said to be the only party with a theory of social development and thus also with a goal based on "the steadfast necessity of economic development" (p. 145). Kautsky further reassures that socialist society will not make "sudden jumps" (p. 168), but will continue the developments already under way in capitalism. Socialism "allows the gains of development to benefit

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52 As general discussions see Colletti, L. (1971): *Eduard Bernstein und der Marxismus der zweiten Internationale*; Kolakowski, L. (1978): op.cit., *Vol. II: The Golden Age*; Strutynski, P. (1976): op.cit. — In Russia A. A. Bogdanov, writing under the name of Maksimov, said that only a few Marxists — "and in the first place Mr Plekhanov" — kept to the "Hegelian form in which the doctrine of Marx has been presented". Maksimov, N. (1906): *K kritik marksizma*, 13 note.

53 Bernstein, E. (1902): *Die Voraussetzungen des Sozialismus und die Aufgaben der Sozialdemokratie*; Kautsky, K. (1899): op.cit., 20—32.

54 Kautsky, K. (1911): *Propagation and development in nature and society*, 20.

55 This is an exerpt from his Parliamentary speech: "You see, what is my gentlemen, the reason why we work as we do and do not go over to painting Utopian pictures and to saying: the socialist society must be like this. It comes by itself." Cited in Gustafsson, B. (1969): op.cit., 29 note.

56 For a very pointed criticism see Corrigan, P.—Ramsey, H.—Sayer, D. (1978): *Socialist Construction and Its Critique*, 27—30; for a more balanced approach see Hussain, A.—Tribe, K. (1981): *Marxism and the Agrarian Question*. Vol. I, 78—80.

57 Kautsky, K. (1886): *Karl Marx' Oekonomische Lehren*.

58 References below are to the Finnish edition Kautsky, K. (1892): *Erfurtin ohjelma*. — Modern monographs on Kautsky include Braiovič, S. (1982): *Karl Kautskij — evol'jucija ego vozzrenij*; Salvadori, M. (1979): *Karl Kautsky and the Socialist Revolution 1880—1938*; Steenson, G. (1978): *Karl Kautsky, 1854—1938: Marxism in the Classical Years*.

everybody and thus takes away all the cruelties and painful phenomena that follow the progress of development in modern society" (p. 163). Here is the difference between Utopian and Scientific Socialism to Kautsky: while the former can only show the desirability of socialism, the latter also shows its law-bound necessity. Progress can only mean socialism to Kautsky. Its sole alternative is regression to barbarity (p. 150).

With a scientific theory of development available, Kautsky asserts that nobody needs utopias. They would not be the blueprints of house to be built — like the opponents of Social Democracy claimed — but "writing the history of a future war" (p. 153). Kautsky writes that only the prognoses of Marx, Engels and Bebel are useful in creating a wider perspective for activity. This does not mean that he did not add to their heritage. Thus Kautsky bluntly denies that socialism could be built upon the old communal forms of ownership. Probably hinting to the Russian populists, he says that this would be "reactionary and without purpose" (p. 132). Only the state or an federation of states could be the proper frame for modern productive forces.[59] Another interesting emphasis in Kautsky is his advocacy of autarchy. Producing to satisfy needs would in the long run mean abolishing not only domestic but also international markets, where — so Kautsky asserts — only surpluses are exchanged. Seeking efficiency by means of specialization would thus not be one of the socialists' occupations (pp. 135—136).

The Social Democrats of the 1890's were very optimistic about the coming of socialism.[60] The party was growing and technical progress advancing. Debates on the socialist society took place in the German parliament as well as in many others.[61] Opposing utopianism did not prevent the Social Democrats from making prophesies. As Kautsky put it: "Any socialist worth his salt can forsake prophesies only as rarely as a good cat can let a mouse go."[62] They were taken to be means of furthening "politische Klarheit und Beständigkeit".[63] Neither did opposing utopianism prevent complementing the prophesies of Bebel and the Erfurt programme with non-Marxist socialist sources. Edward Bellamy's *Looking Backwards* was circulated by the party, while William Morris' *News from Nowhere* was serialized in the party press. Kautsky himself added a preface to a book of Atlanticus (the pen name of professor Karl Ballod), preaching the prospects of technical progress and especially of electrification.[64]

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[59] The nation-wide perspective of Morus was the main reason why Kautsky took his utopia to be "the beginning of modern socialism". See Kautsky, K. (1895): *Thomas More.*

[60] In the 1891 party congress, Bebel told that only a few of those present would never see socialism. Cited in Braunthal, J. (1967): op.cit., 196.

[61] Tarschys, D. (1972): op.cit., 90—99.

[62] Kautsky, K. (1911): *Propagation . . .*, op.cit., 247.

[63] Kautsky, K. (no year indicated): *Das Soziale Revolution*, 67.

[64] In Russian: Atlantikus (1906): *Gosudarstva buduščego.* The second edition of this book was to be an important example in preparing the GOELRO plan of electrification in 1920. — For Bellamy and Morris see Manuel, F.—Manuel, F. (1979): op.cit., 761—772.

The single theoretically interesting contribution was in Kautsky's answer to the queries of the Dutch politician and economist N. G. Pierson in 1902. Here Kautsky sees increasing production as the main economic problem in socialism. This, however, would not be difficult as large-scale production, rationalization and better motivation of the workers — also manipulated by a proper wage system — would increase productivity tremendously. It would be more difficult to maintain an economic equilibrium.[65] Here the solution lay in the cartels and delivery agreements already in existence. Other capitalist remnants to be used would be money and prices. This was a new idea in Social Democratic literature: money would be preserved for practical reasons, for organizing the circuit of commodities.[66] In setting prices, Kautsky thought that historically given price-ratios would be used. No wonder Pierson could retort that the foremost theoretician of the Social Democratic movement did not understand the role of prices in an economy. For Pierson, the possibility of an economically rational planned economy remained an unproved proposition.[67]

To conclude: what the German Social Democrats added to Marx and Engels was an increased emphasis on social continuity. This was, in the first place, true of large-scale industry, cartels and applied science. The socialist economy was thought to be about increasing production and furthering technical progress. The Social Democrats had nothing of great importance to say about planning and managing the economy. It was all taken to be very simple. As Kautsky put it:

> In the socialist society, which is after all just a single giant industrial enterprise, production and wages must be exactly and in a planned way organized, like they are organized in a modern large industrial enterprise.[68]

As will be seen below, Lenin remembered this well. But before relating the thought of Russian Bolsheviks to the Marxist heritage, another question must be addressed. Were any dreams of socialism relevant to the backward Russia? This question was faced first by the Russian Populists, and then by the Russian Social Democrats.

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65 The same problem was approached by Tugan-Baranovskij proposing that equilibrium prices would influence production and consumption, but not investments or employment. See Tugan-Baranowsky, M. (1908): op.cit., 196—197.

66 Kautsky, K. (no year indicated): *Die Soziale . . .*, op.cit., 81. — While Oskar Lange saw this as Kautsky's most important contribution to the economics of socialism (see Lange, O.—Taylor, F. (1938): *On the Economic Theory of Socialism*, 134), Linder points out that from the Marxist point of view Kautsky's reason for having money in socialism is disappointing. For Marx at least, money was not a matter of convenience. See Linder, M. (1975): op.cit., 71—75.

67 Pierson, N. (1902): The Problem of Value in the Socialist Community.

68 Kautsky, K. (1892): *Erfurtin . . .*, op.cit., 167. The analogy has its roots in Marx, who ironically noted that the most enthusiastic proponents of factory production knew no better objections against the social regulation of production than that it would make the whole society into a single factory. See Marx, K. (1867): Das Kapital I, op.cit., 377. Somehow Kautsky and later Lenin seem to have taken Marx's irony at face value.

1.4. *Russian Populism*

Western Social Democracy as exemplified by its leading part, the German party, was the single most important source for Russian Social Democratic thinking. Another important source was the democratic and revolutionary tradition of the Russian intelligentsia. Russian Social Democracy was formed in debates with Russian Populism, the most important outgrowth of this tradition. Even though the populists were losers, their influence on Social Democratic thinking is important.[69]

Wars and foreign trade had assured Peter I of the backwardness of Russia. His drive for westernization relied on the old state-centered traditions of Muscovy, thus further distancing the state apparatus from the great masses of people. While this was seen as inevitable by many looking for guidance from Mercantilism, Physiocracy and even Saint-Simonism, the intelligentsia proper, critical men of education, saw the Western values of rationalism, material well-being and progress, individualism and concern for general welfare as standing in glaring contradiction with the stupidity and barbarian archaity of the autocracy and its state. This led to the most peculiar feature of Russian radicalism: fierce anti-etatism and anti-bureaucratism. The state was seen as the foremost obstacle to human self-fulfillment.

Though some laid the blame at the state's door for driving for westernization and others for impeding it, hardly anybody stood for a blind imitation of the West. Several thinkers found little to recommend itself in large-scale industry and bourgeois democracy. Importing radical social thought and modern technology should not mean introducing capitalism. Russia's village commune, the *obščina*, widely known through the treatise by the Preussian von Haxthausen,[70] was thought to be an ancient institution preserved on Russian soil to give it a way of avoiding the cruelties of capitalism. The commune was thought to have made the peasants into born socialists after they had lived through ages of common ownership of land, equality and self-government. By removing the obstacles of communal life, equality and justice could be brought to all Russians. The state had to be destroyed to bring about a future of communes, craftmen's artels and other organs of self-government.

It has been claimed that the Russian intelligentsia never created a single original idea, and recurrent waves of Western thought always did have an enthusiastic audience

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[69] On the Russian radical intelligentsia see Berlin, I. (1979): *Russian Thinkers*; Hare, R. (1951): *Pioneers of Russian Social Thought*; Mendel, A. (1961): *Dilemmas of Progress in Tsarist Russia*; Pipes, R. (1977): *Russia Under the Old Regime*; Walicki, A. (1980): *A History of Russian Thought*; Venturi, F. (1960): *The Roots of Revolution.*

[70] There is a shortened English version. Von Haxthausen, A. (1972): *Studies on the Interior of Russia.*

in Russia. Golden Age Utopianism came to Russia in the 1830's and 1840's,[71] and the widely diverging views of von Haxthausen on the commune, Hegel on the difference between the state and the society, and the Utopians on the possibility of a different future all contributed to the antietatism of the intelligentsia. Saint-Simonism was the ideology of some modernizing St. Petersburg bureaucrats, while Fourier gave grounds for a dream of an organized society.[72] Fourierism influenced Petraševskij's group[73] as well as the literary critic Vissarion Belinskij, who was looking for a new Peter to modernize Russia. Fourier's influence upon Alexander Ivanovič Herzen (1812—1870), the real founder of Russian peasant socialism, was also notable. For Herzen, a great believer in human freedom, socialism was but one part of the endless chain of history to be followed by a still higher form.[74]

In the aftermath of the Crimean War and the "liberation" of the peasants, the idealism, romanticism and metaphysics of the 1840's soon gave way to the realism, materialism and scienticism of the 1860's. Russia then got its greatest utopian socialist. He was Nikolai Gavrilovič Černyševskij (1828—1889), who largely by his novel *What is to be done?* created populism as a movement. Lenin, who regarded Černyševskij as the greatest utopian socialist of all, has told how reading this novel totally changed him as a youth.[75]

The novel is best known for its portrayal of the new men, rational egoists, but in a famous dream it also tells the readers about the bright future ahead. The picture given is beautiful but hardly original, showing how well the writer had read his Fourier.[76] But actually the little-known other works and manuscripts of Černyševskij are a richer source of information as to his ideas of the future. Some Soviet commentators, like N. V. Khessin, even claim — probably exaggeratingly — that he has there a whole theory of the political economy of socialism.[77]

Černyševskij has often been called the first Russian proponent of the scientific study of society. Quite expectedly, his approach to the functioning of the future society was Utilitarian. All work and consumption that would not serve the

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71 Malia, M. (1961): *Alexander Herzen and the Birth of Russian Socialism, 1812—1855*, 99—134. — The intellectual influences met with by the young Russians were, as already Rjasanov pointed out, the same as those occupying Marx at the same time. See Rjasanov, D. (1906): *Dve pravdy. Narodničestvo i marksizm*, 39.

72 See Kaplan, F. (1958): Russian Fourierism of the 1840's: A Contrast to Herzen's Westernism. *The American Slavic and East European Review* XVII:2, 161—172.

73 The fact that Dostoevsky was sent in this connection to the House of the Dead, quips Lampert, may well be Fourier's main gift to modernity. See Lampert, E. (1965): *Sons Against Fathers*, 207.

74 Herzen, A. (1979): *From the Other Shore & Russian People and Socialism*, 147.

75 See, e.g., Paškov, A. (1960): *Ekonomičeskie raboty V. I. Lenina v 90-kh godov*, 362—366. Plekhanov's attitude toward Černyševskij was much more critical.

76 Other influences included Owen, Blanc and Lassalle. See Lampert, E. (1965): op.cit., 202—208.

77 Khessin, N. (1982): *N. G. Černyševskij v bor'be za socialističeskoe buduščee Rossii.*

needs of the toilers would be unnecessary. Černyševskij divided needs into three classes: material (goods of necessity), mental (goods of convenience) and aesthetic (luxury goods). Distribution would be dependent on the work done, subject to some social considerations. Allocation would be based on statistics of labour-power, and to prevent any contradictions between general good and private interests from arising, all decisions would be made by the producer-consumers themselves. With Fourierian "productive emulation" and with the division of labour preserved (naturally freed from its present drawbacks), productivity would be huge. All producer-consumers would be organized into associations, within which money would have no role, but a money-token of some kind would be needed in exchange between them. Only surpluses would be exchanged.

If Herzen's socialism was qualified by his ultimate liberalism, Černyševskij was consistently revolutionary.[78] He shared the Populists' general absolute anti-etatism — he called the state "the shapeless monster, the omnivorous Leviathan"[79] — but he deviated from mainstream Populism with his stress on large-scale industry and the need to mechanize transport and agriculture. Some commentators have denied his populism outright.[80]

In spite of the tradition of anti-etatism, the idea of using the state in overturning the society was alluring. After serious setbacks to the Populist cause in the early 1870's, the young Pjotr Tkačev stressed the need for a quick coup by an effectively organized minority.[81] Pjotr Lavror, the leading authority among the Populists, saw Tkačev's way as leading into a minority dictatorship. For Lavrov, progress meant diminution of the state-element in society. In the future federation of associations, a central government would only be needed to take care of defence, transport and warehouses. Lavrov claimed that by manning it with Černyševskian new men its turning into a hated state could be prevented. Lavrov, who thought that the purpose of social revolution was to "transform society according to the natural and immovable laws of sociology",[82] saw studying the economic problems of the future society as an important task for revolutionary intelligentsia. In this opinion

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78 Pereira, N. (1975): *The Thought and Teachings of N. G. Černyševskij*, 113—119.

79 Cited in Lampert, N. (1965): op.cit., 203.

80 Schwartz, S. (1955): Populism and Early Marxism on the Ways of Economic Development of Russia (The 1880's and 1890's), 44—45. On Černyševskij as the beginner of Russian social science see Vucinich, A. (1976): *Social Thought in Tsarist Russia*, 3. For a modern Soviet interpretation of him as a transitional figure between utopian and scientific socialism see, e.g., Malinin, V. (1977): *Istorija russkogo utopičeskogo socializma*, 192—228.

81 The connection between Tkačev and Lenin's party theory has often been pointed out. See, e.g., von Borcke, A. (1977): *Die Ursprunge des Bolshewismus*. While many Soviet writers refer to Tkačev's "adventurism", it is denied by Šakhmatov, B. (1981): *P. N. Tkačev. Etjudy k tvorčeskomu portreti.*

82 Cited in Vucinich, A. (1976): op.cit., 25—26. On Lavrov see Pomper, P. (1972): *Peter Lavrov and the Russian Revolutionary Movement*; Kimball, A. (1971): The Russian Past and the Socialist Future in the Thought of Peter Lavrov. *SlRev* XXX:1, 28—44.

he had but a few followers. Revolutionary activism was generally favoured over pondering. Largely, no doubt, this was because the Populism of the 1870s was already clearly a backward-looking utopianism that, as Andrez Walicki characterizes it, glorified already disappearing social forms.[83]

Indeed, by 1880 it was becoming evident that Populism was standing firmly in shifting sand — or so many thought, at least. Increased social research showed how far the tales of von Haxthausen had been from reality. The monetary economy and social differentiation were ruining the commune. The real peasant was seen to be a far cry from the "born socialist".[84] The Populists' tactics of terrorism were counterproductive. Russian Social Democracy was one of the fruits of the reassessment to follow.

1.5. *Marxism and Russia*

Writings of Marx and Engels had been known in Russia as early as in the 1840's. David Rjasanov has shown that the *Critique of Political Economy* of 1861 had Russian readers just a few months after its printing.[85] In 1865 Tkačev claimed that "all thinking and critical people" accepted Marx's theory of history. The first translation of *Capital*, Vol. I was the one into Russian in 1872. Printing permission was given, *inter alia*, because the book was thought to be too difficult to cause any danger.[86] When *Capital*, Vol. III was given printing permission in 1896, the reason was already different: the thought of Marx was held to belong to all economics courses.[87]

However, there were no Russian Marxists before the 1880's. Belinskij knew only parts of Marxism, Černyševskij knew even less, Tkačev was a totally inconsistent thinker,[88] and Lavrov regarded Marxism as inconsistent. The economics professor Zieber based his lectures upon Marx, but was politically liberal. Generally, Marx was not studied by Russian readers so they might become Marxists, but in order to learn the latest additions to Western studies that showed the corrupt capitalist reality even though they were without relevance to peculiar Russian conditions. Probably the closest influence came through the International, in which

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83 Walicki, A. (1980): op.cit., 233. Present-day Soviet assessments are more positive, perhaps on some grounds. See Malinin, V. (1972): *Filosofija revoljucionnogo narodničestva.*

84 Only a few of the established socialist model communes ever succeeded in Russia. See Tugan-Baranowsky, M. (1921): *Die kommunistischen Gemeinwesen der Neuzeit.*

85 Rjasanov, D. (1919): *Karl Marks i russkie ljudi sorokovykh let*, 48; Konjušaja, R. (1975): *Karl Marks i revoljucionnaja Rossija.*

86 Koročkin, V. (1967): Pervye otkliki na "Kapital" K. Marksa v Rossii. *VE* 9, 34—42; Resis, A. (1970): Das Kapital Comes to Russia. *SlRev* XXIX:2, 219—237. The censors did ban other works by Marx.

87 Paškov, A. (1960): op.cit., 91.

88 Hardy, D. (1977): *Petr Tkachev, the Critic as Jacobin.*

many Russian revolutionaries participated. Thus Marx's analysis of the Paris Commune influenced both Lavrov and Populist programmatic documents.[89]

Marx and Engels had come into contact with some Russian revolutionaries already in the 1840's. Distaste between the "German doctrinaires" and "Russian nationalistic anarchists" was mutual. In their writings of Russian foreign policy influence in the 1850's, Marx and Engels showed deep Russophobic feelings. The second phase in their interest in Russian affairs came in the 1870's. Russian debates came into the International, the country itself became the European focus of revolutionary activity and the state and society themselves proved to be fascinating topics of research. The last years of Karl Marx's active work were largely devoted to the Russian question.[90]

The views of Marx and Engels changed fast. In 1874 Engels came to Lavrov's help in his debate with Tkačev.[91] Surprisingly, the young man answered Engels stiffly accusing him of incompetence and tutelage. On the exhortation of Marx,[92] Engels gave a new answer.[93] He stressed that Russian socialism would presuppose a phase of capitalist development, already to be seen. Even then, the still existing communal forms might help to bypass capitalism on the condition that Russia would have the right kind of home development and a victorious Western revolution would support the Russians. This was the original Marxist analysis of Russian socialist perspectives.

In 1877 the Russian populist N. K. Mikhalovskij published an article deducing from the Marxian conception of history that there is a socialist obligation to further the disappearance of the commune so as to advance capitalist development. Marx reacted with a draft of a letter published only later.[94]

In this draft Marx claimed to have reached the following conclusion: "If Russia continues to pursue the path she has followed since 1861, she will lose the finest chance ever offered by history to a people and undergo all the fatal vicissitudes of the capitalist regime." Mikhalovskij had misrepresented the thought of Marx, feeling that "... he absolutely must metamorphose my historical sketch of the genesis of capitalism in West Europe into a historico-philosophic theory of the general path every people is fated to tread". Marx maintained that what is needed

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89 Kimball, A. (1973): The First Internationale and Russian Obshchina. *SlRev* XXXII:3, 491—514; McLellan, W. (1979): *Revolutionary Exiles.*

90 Much of Marx's manuscripts and notes are still unpublished. See Konjušaja, R. (1975): op.cit; Krause, H. (1958): *Marx und Engels und die zeitgenössige Russland; Karl Marx über Formen vorkapitalistischer Produktion* (1977).

91 Engels, F. (1875): Flüchtlingsliteratur III. *MEW* 18:536—545.

92 Marx regarded Tkačev's writing as so stupid that only Bakunin, his favourite enemy, could have written it! Marx, K. (1875): Brief an Friedrich Engels. *MEW* 34:5.

93 Engels, F. (1875): Flüchtlingsliteratur IV—V (Soziales über Russland). *MEW* 18:546—567.

94 Marx, K. (1877): Brief an die Redaktion der "Otetshestwennyje Sapiski". *MEW* 19: 107—112.

is concrete historical research. No results could be reached "by using as one's master key a general historico-philosophical theory, the supreme virtue of which consists of being superhistorical".

These sentences are obviously of crucial importance for understanding the theory of history in Marx,[95] and they must have given hope in the search for a specific Russian model of development (when the draft was finally read!). But even then Marx does not here directly face the crucial question of the relation between the commune and socialism.[96] His later pronouncements were also very cautious. Thus Marx used a lot of time to give his answer to Vera Zasulič, one of the early Russian Social democrats, after she had asked outright for Marx's opinion of the commune. After four lengthy drafts he sent a short letter[97] stressing the differences between Russian and West European development. Specific research had convinced Marx of the commune being "the mainspring of Russia's social regeneration" if one could ensure the conditions normal for spontaneous development by eliminating the deleterious influences that assail the commune "from every quarter".[98]

This can be seen as support for the Populist standpoint, and the Soviet historian Khessin claims that Marx here reached exactly the same conclusion as Černyševskij — whose views were well known to Marx. In this letter Marx does not mention, as he did both before and after 1881, Western revolutions as a precondition for Russian development. In 1881 they were not even on the horizon. But there is no evidence that Marx ha ever accepted the Populists' basic idea that peasant Russia could developed into socialism on its own or even show the way to the West. The way in which Marx and Engels tied together the destinies of Russia and the West shown just a year later in a joint writing: "If the Russian revolution becomes the signal for a proletarian revolution in the West, so that both complement each

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95 Thus Eifler puts slave-owning society, the Asiatic mode of production and feudalism together into a single secondary formation. See Eifler, R. (1972): Vorkapitalistische Klassengesellschafte und aufsteigende Folge von Gesellschaftsformationen im Werke von Karl Marx. *Zeitschrift für Geschichtswissenschaft* XX:5, 577—596. Parallel proposals have also been made in Soviet literature.

96 For a discussion of the letter see Knei-Paz, B. (1978): *The Social and Political Thought of Leon Trotsky*, 591—593.

97 In interpreting Marx, much emphasis is often put on the drafts, though the fact that they were not sent shows Marx's uncertainty. On the other hand the Social Democratic recipients' problems with the letter are shown in the fact that it was not published until this century and the drafts not until the 1920's, when they were used in Soviet discussions to support the positive role of the commune in future Soviet development. See Atkinson, D. (1983): *The End of the Russian Land Commune 1905—1930*, 289—293.

98 Marx, K. (1881): Brief an Vera Zassulitsch, *MEW* 35:167.

other, the present Russian common ownership of land may serve as the starting-point for communist development."[99]

This was support for the Populists — the only promising revolutionary movement in Europe[100] — but support qualified with reservations.[101] Later when the Populist movement had been largely repressed in the 1890's, Russian Social Democracy was raising its head, and Russian capitalist development was a plain fact, Engels — after the death of Marx — regarded the commune as already doomed, but even then admitted that the era of revolutions might begin in Russia. Furthermore, the communal forms then left might well help Russia shorten its path to socialism if Western proletarian revolutions took place.[102] The commune was no longer "the mainspring of Russian social regeneration". In fact, this reappraisal had been underway among the Russians already while Marx and Engels were nearest to the views of the Populists.[103]

1.6. *Russian Social Democracy*

Basically, the birth of Russian Social Democracy meant postponing socialist perspectives till capitalist development had created an industrial proletariat both willing and capable of seizing power. Within this general analysis, Plekhanov and Trotsky can be seen as antipodes.

Grigori Plekhanov was a Populist activist turned into Marxist.[104] Having first

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99 Marx, K.—Engels, F. (1882): Vorrede zur zweiten russischen Ausgabe des Manifests der Kommunistischen Partei. *MEW* 19:296. For the idea of a "Černyševskian" Marx see, in addition to Khessin, N. (1982): op.cit., in particular, Wada, H. (1981): Marx and Revolutionary Russia. *History Workshop Journal* 12, 129—150.

100 In these years Marx even expressed sympathy towards terrorism, generally repulsive to him. See Szamuely, T. (1974): *The Russian Tradition*, 379—386; Cummins, I. (1980): *Marx, Engels and National Movements*, 154—163.

101 Some interpreters find a contradiction between the views of Marx and Engels (thus Schwartz, S. (1955): op.cit.) while others see Engels changing his opinions between 1875 and 1882 (thus Hussain, A.—Tribe, K. (1981): op.cit., Vol. II, 24). It might be in fact argued that the writings of both Marx and Engels have two levels. On a general level in particular Marx was very interested in Russian social structure. The possible importance of the commune was always seen in an international perspective of revolutionary development. On a tactical level, treating the Russians as a part of the International, utterances were politically selective.

102 Engels, F. (1894): Nachwort zu "Soziales über Russland". *MEW* 18:668. Also see *MEW* 39:150; 38:366, 468; 39:37.

103 For an analysis of Populist reactions to the demise of the commune see Wortman, R. (1967): *The Crisis of Russian Populism.*

104 On Plekhanov, see Baron, S. (1963): op.cit.; Kolakowski, L. (1978): op.cit., Vol. II, 329—353. On early Russian Social Democracy generally see Haimson, L. (1955): *The Russian Marxists & The Origins of Bolshevism*; Plamenatz, J. (1954): *German Marxism and Russian Communism*; Ulam, A. (1969): *Lenin and the Bolsheviks.*

used Marx to emphasize the pecularities of Russia, he later saw Russian development as basically — but not absolutely[105] — the same as in Western Europe. Plekhanov sketched the future course of Russia from a bourgeois revolution to a capitalist era and finally to a proletarian socialist revolution in a reappraisal forming Russian Social Democracy. Peasants were no longer seen as "born socialists". They were regarded as reactionaries longing for pre-capitalist conditions. Socialism was not about communes but about state ownership of developed industrial system and non-market production. Reflecting this general approach, a Russian Social Democratic source in 1906 referred to Bebel, Kautsky, Atlanticus and William Morris for details about life under socialism. The single utopia written by a leading Bolshevik, Bogdanov's *Red Star*, shared an approach with Bebel that equated planning and management with book-keeping.[106]

By the early 20th century, Russia knew two kinds of socialism — workers' and peasants' — and had four socialist parties. Social Revolutionaries (the SRs) and Popular Socialists continued the traditions of peasant socialism, while the Social Democrats were divided into Bolsheviks and Mensheviks. Oliver H. Radkey has shown how the SRs never had a unified image of Russian agrarian socialism.[107] Some Populist revolutionary ideas of abolishing scarcity and power relations did find support in the oppositionist movements of 1918—1921,[108] but basically Russia's future was to be shaped by Social Democrats, who all shared the standard German ideas of the future Russia. The sole exception was old Plekhanov, who was to doubt the relevance of socialism for the Asiatic heritage of Russia.

The insurgent peasants and passive bourgeoisie of 1905 upset Plekhanov's theories, leading him to fear of a premature socialist revolution leading "... to a political monster similar to the ancient Chinese and Peruvian empires, i.e. to a renewal of tsarist despotism with a communist lining".[109] Developing a theory of Russia as an Oriental Despotism,[110] Plekhanov saw that "it is the working class in our country that is destined to finish the greatest work of Peter — complete

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105 This is already stressed in Plekhanov's very first Marxist writings.

106 See Stites, R. (1978): *The Women's Liberation Movement in Russia*, 266, note 15. Bogdanov's utopia is now available in English. Bogdanov, A. (1908): Red Star. A Utopia.

107 Social Revolutionism, concludes Radkey, was more a state of mind than an ideology. See Radkey, O. (1958): *The Agrarian Foes of Bolshevism*; Radkey, O. (1963): *The Sickle under the Hammer.*

108 On the Anarchists and their influence see Carr, E. (1938): *Michael Bakunin*; Miller, M. (1976): *Kropotkin*; Anweiler, O. (1974): *The Soviets*, esp. 94—95; Avrich, P. (1970): *Kronstadt 1921*, esp. 157—192.

109 Plekhanov, G. (1884): Our Differences. In Plekhanov, G. (1974—1981): *Selected Philosophical Works in Five Volumes*, Vol. I, 313.

110 There is a rich literature on the Asiatic Mode of Production and Oriental Despotism. For an introduction see *The Asiatic Mode of Production: Science and Politics* (1981). For an analysis of Soviet discussions see Sawer, M. (1977): *Marxism and the Question of the Asiatic Mode of Production*, where Plekhanov's theory in summarized on pp. 156—178.

the *Europeanisation of Russia*",[111] and opposed all measures that might strengthen central state power. Thus, Plekhanov finally concluded that the strategies of Western Social Democracy were extremely dangerous in Russia, while pondering (so it is told) whether he had made a mistake in starting Marxist propaganda in Russia.[112]

Plekhanov's theories had support in early "Russophobic" Marx and Engels as well as in Engel's prophesies about the outcome of a premature German revolution. But these ideas had not gone unchallanged among Russian Marxists. David Rjasanov criticised Marx in 1909 for not having seen that by warring and trading Russia had become part of Europe in the late 16th century.[113] Lev Trotsky went even further by arguing for the advantages of being backward.[114]

The first contributions of V. I. Lenin were empirical analyses supporting Plekhanov's speculations on the development of capitalism in Russia.[115] He maintained that only by studying Russian reality could the Russians develop Marxism.[116] Though he basically saw Russia as capitalist, his analyses were not always consistent. In opposing the Populists in the 1890's, he took Russian capitalism as an established fact, but in 1912 he wrote of capitalist relations as being still squeezed by relations of serfdom in Russian agriculture.[117] But even then Lenin regarded the Asiatic restoration feared by Plekhanov as being impossible.[118]

Lenin wanted the 1899 programme of the Russian Social Democrats to follow the Erfurt programme as closely as possible.[119] Russia's pecularities were the illegality of party work and the need to fight all remnants of the precapitalist

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111 Plekhanov, G. (1889): A New Champion of Autocracy. In Plekhanov, G. (1974—81): op.cit., 399.

112 Baron, S. (1963): op.cit., 305.

113 The text in question is Marx, K. (1856—57): *Geschichte der Geheimdiplomatie des 18. Jahrhunderts*, originally published in English and not included in MEW. Rjasanov's article — as published with minor amandments in Kautsky's *Neue Zeit* — is in Marx, K. (1856—57): *Geschichte . . .*, op.cit., 179—242 and the original version in Rjasanov, D. (1928): *Očerki po istorii marksizma. Tom 2*, 163—267. Rjasanov's line of analysis is followed in Anderson, P. (1975): *Lineages of the Absolutist State*, which contains a trenchant criticism of the concept of the Asiatic Mode of Production.

114 Knei-Paz, B. (1978): op.cit.

115 See Harding, N. (1978): *Lenin's Political Thought, Vol. I*; Kindersley, R. (1962): *The First Russian Revisionists*; Mendel, A. (1961): op.cit.; Walicki, A. (1969): *The Controversy Over Capitalism.*

116 Lenin, V. (1894): Čto takoe "druzja naroda" i kak oni bojujut protiv social-demokratov. *PSS* 1:274—275. Also *PSS* 4:184.

117 Lenin, V. (1912): Suščnost' "agrarnogo voprosa v Rossii". *PSS* 21:306—307.

118 Lenin, V. (1906): Peresmotr agrarnoj programmy rabočej partii. *PSS* 12:239—270, esp. 253 note 2. True enough, Lenin regarded the restoration to the pre-democratic state of affairs as even inevitable (see *PSS* 12:362—363) in case no Western revolution and other preconditions of socialist development. His denial of this having a "close and immediate" connection with forms of land ownership, so central to Plekhanov's argument, clearly implies that his concern was not of an *Asiatic* restoration.

119 Lenin, V. (1899): Proekt programmy našej partii. *PSS* 4:219—239.

patriarchic order: the autocracy, the position of peasants and all the "half-asiatic" cultural features of the country. As for final socialism, Lenin was straight-forwardly Kautskian. For him, too, socialism was "the final goal and necessary result of the development of productive forces in modern society"[120] as an economy progressed "from serfdom to capitalism and through large-scale machine production to socialism".[121]

As for the commune, Lenin's political understanding was firm: not communal harmony but class struggle was the motor of Russian rural as well as urban development. The existing remnants of the commune were just a cloak for rural differentiation and exploitation. One may wonder whether the upsurge of communal forms after the October Revolution corroborates Lenin's analysis, but certainly class struggle was the road finally selected for the Russian countryside.[122]

Most of Lenin's scattered remarks on socialism are reflections of well-known Social Democratic orthodoxy. He wrote on social ownership, on the "immense growth" of production, on shortening the working day, on changes in the family and in education, on the dying away of the state and laid special emphasis on large-scale marketless production.[123] Much later, Lenin's remark on satisfaction of needs as the goal of socialist production was found to be of immense importance (below, Chapter 4).[124]

A recently published manuscript gives a graphic view of Lenin's way of thinking.[125] In discussing Rosa Luxemburg's theories of reproduction, Lenin sets up tables comparing the basic proportions of reproduction in three phases of history. Socialism, already a hundred years in existance, has attained a social product 88 times higher in value terms than in capitalism. The technical composition of capital under socialism is twice that of capitalism. Interestingly, the rate of accumulation has come down to less than three percent from having been almost

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120 Lenin, V. (1895): Fridrikh Engel's. *PSS* 2:5. Also *PSS* 4:161; 26:73.

121 Lenin, V. (1914): Levonarodničestvo i marksizm. *PSS* 25:235—236.

122 One can hardly follow Hedlund in saying that the commune was selected as the model of kolkhozes, as collectization presupposed a violent shake-up of the Russian countryside. Compare Hedlund, S. (1983): *Crisis in Soviet Agriculture?*, 65 etc.

123 Lenin, V. (1899): Proekt . . ., op.cit. Also *PSS* 15:225—226; 30:227; 17:127.

124 "The ending of the paragraph is also not felicitous: "a planned organization of the social productive process for the needs of the whole society as well as its separate members". This is not enough. Such an organization is also given by the trusts. It would be more accurate to say: "for the *whole* society (for that both contains the planned character and also points to the subject of it), and not only for satisfying the needs of the members, but for securing the *total* well-being of *all* the members of the society and their free, *all-sided* development"." Lenin, V. (1902): Zamečanija na vtoroj proekt programmy Plekhanova. *PSS* 6:232.

125 Leninskij sbornik XXXVIII(1975):80—91 as summarized in Heinrichs, W. (1980): Aktuelle methodologische Fragen des marxistisch-leninistischen Reproduktionstheorie. *Wirtschaftswissenschaft* XXVIII:2, 129—144.

ten percent in capitalism. Presumably, growth of production is only necessary to the degree of further growth in needs.

What Lenin did write about socialism before the revolution might be summed up as follows: "Socialism = the achievements of capitalism plus Soviet power."[126] The emphasis on the achievements of capitalism is especially clear in his analyses of German war-economy, an experience which generally strengthened belief in the possibility of a marketless economy.[127] Nowhere is this double determination more pronounced — and its internal contradictions more evident — than in Lenin's main utopia, *State and Revolution*.[128] This pamphlet was neither a programme for short-term policies nor an *ad hoc* legitimation for taking power,[129] but it was a declaration of Bolshevik principles in face of the crisis of Western Socialism and for opposing anarchism still influential in Russia. As a declaration of principles, it hardly contained anything fundamentally new.[130]

In sketching short-term policies, Lenin laid much emphasis on using the achievements of capitalism.[131] He wrote of the proletariat taking its weapons from the capitalists and creating nothing from nothing. One could and should take over the modes of organizing production, syndicates, the best factories, experimental stations, academies and especially banks, which he thought to be of utmost importance in organizing the economy.[132] Accounting and workers' control were also given special attention, as capitalist rationalization had simplified administration so much that every literate person was able to take care of it. What was for Bebel still a matter of the future was for Lenin already an accomplished fact.

Neither Bebel nor Kautsky nor Lenin had much of an idea of how a socialist economy could function. They all subscribed to a thought giving growth of pro-

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126 See, e.g., Lenin. V. (1914): Sistema Teilora — porboščenie čeloveka mašinoj. *PSS* 24:371.

127 Alec Nove connects Lenin's "semi-utopian belief in the simplicity of economic administration" with a misunderstanding of the German war-economy. As seen above, this belief also has longer roots in Social Democratic orthodoxy. Nove, A. (1979): Lenin as Economist. In Nove, A. (1979): *Political Economy and Soviet Socialism*, 63—80.

128 Lenin, V. (1918): Gosudarstvo i revol'jucija. *PSS* 33:1—120.

129 Moore, B. (1950): *Soviet Politics — the Dilemma of Power*; Anweiler, O. (1974): op.cit.

130 Of more importance for the anti-etatism of the book than Bukharin's influence (Cohen, S. (1975): *Bukharin and the Bolshevik Revolution*, 41—43) or the experiences of early 1917 (Anderson, P. (1976): *Considerations on Western Marxism*, 116) might well have been Marx's writings on the Paris commune (Harding, N. (1981): op.cit., Vol. II). As Wiles points out, it is typical of the level of abstraction of the book that it does not even mention the party or planning. Wiles, P. (1977): *Economic Institutions Compared*, 225.

131 Lenin, V. (1917): Grozjaščaja katastrofa i kak s nej borot'sja. *PSS* 34:151—199; Lenin, V. (1917): Uderžat li bol'ševiki gosudarstvennuju vlast'? *PSS* 34:287, 339.

132 Taking over the six largest banks in Germany, wrote the Social Democratic theoretician Rudolf Hilferding in 1910, would mean controlling large-scale industry. Hilferding, R. (1910): *Das Finanzkapital*, 504.

ductive forces central importance in attaining the humanistic final goals of the communist utopia. This growth — a precondition for human self-fulfillment through a shortened working day and changes in the work itself — would be possible when progressive developments under way in capitalism would be freed from the barriers set by capitalism. As for the functioning of economy, both Lenin and Kautsky wrote of the future society as "one office and one factory, with equality in work and in salaries".[133] This is the utopia common to them: a society working like a watch — but somehow ruled by the Soviets (or elected representatives of the industrial branches).[134] One can hardly accuse Lenin of the fact that he was the only Social Democratic leader to meet the problem of implementing this utopia in practice. Here the Marxist learning of the Bolsheviks gave them little to rely upon. What they had learned was mostly deleterious since it created a belief in the essential simplicity of planning and managing the economy. But a problem of even greater importance was that the revolutionary strategies of the Bolsheviks were soon to be seen as having been founded upon illusions. The Western socialist revolutions never came, and the problem of uniting the interests of the peasants and the workers had to be faced in a new light. Largely, these facts were to be the twin parents of the Soviet political economy of socialism.

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133 Lenin, V. (1917): Gosudarstvo . . ., op.cit., 101. For Kautsky, see above, p. 000.

134 On Lenin's views on organisation see Lane, D. (1981): *Leninism. A Sociological Interpretation.* The interpretation here, stressing Lenin's orthodoxy as far as his image of socialism is concerned, differs essentially from that of Bettelheim (Bettelheim, C. (1976): *Class Struggles in the USSR. First Period, 1917—1923*), who exempts Lenin from the "mistakes" of the Social Democratic orthodoxy. It also differs from the interpretation of Corrigan and others (Corrigan, P.—Ramsey, H.—Sayer, D. (1978): op.cit.) who see all orthodoxy, including Lenin, as a sinful lapse from real Marxism. Here the orthodoxy is seen as a natural adaptation to the situation created by the vagueness and "theoretical nihilism" of Marx on one hand and the pressures of creating a mass party on the other hand. For a recent analysis close to the one presented here see Sirianni, C. (1982): *Workers' Control & Socialist Democracy.*

2. TOWARDS SOVIET SOCIALISM

2.1. *The ideology of War Communism*

The first post-revolutionary experiences did not change Lenin's image of socialism: "building socialism means building a centralized economy, an economy managed from one centre",[1] he said in January 1919. This continuity is often forgotten behind the changes in opinions about the appropriate transition to socialism.[2] Later, Lenin saw several reasons for initial War Communist "stupidities": the backwardness of the country, its isolation and the mistake of having adopted the old state apparatus.[3] Seeing the problems that were inherited did not make Lenin lose his belief in Russian socialism. What he called the Cultural Revolution was to be a bundle of policies compensating for the backwardness of Russia. Revolution was to mean assimilating achievements of capitalism like culture, science, technology, the arts and the workers' political consciousness. Furthermore, it was to mean creating a new work discipline, using Taylorism and bourgeois experts as well as cooperation, material self-interest and *khozraschet*, the profit-and-loss responsibility of enterprises. This, and not any reliance on the "backward" commune, would be the way of advancing on the path of Russian socialism till the Western revolution came.[4] Lenin was for making Russia socialist through Westernization. The implications of the missing Western revolution were left for his followers to debate.

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[1] Lenin, V. (1919): Reč' na ob"edinennom zasedanii VCIK ... *PSS* 37:422.

[2] Compare, e.g., Bettelheim, C. (1976): *Class Struggles in the USSR. First Period: 1917—1923.*

[3] According to the official Soviet view War Communism was an emergency policy for a war-ruined country. Similar explanations have also been put forward by E. H. Carr and Maurice Dobb in their well-known histories. For a contrary view see Roberts, P. (1970): "War Communism": A Re-Examination. *SlRev* XXIX:2, 238—261. Ideological motives are also stressed by Haumann, H. (1975): "Kriegskommunismus" oder unmittelbare Aufbau des Sozialismus. *Jahrbuch für Geschichte Osteuropas* NF XXIII:1, 97—104; Medvedev, R. (1979): *The October Revolution*; Szamuely, L. (1974): *First Models of the Socialist Economic System.* On policies towards the state apparatus see Rigby, T. (1979): *Lenin's Government. Sovnarkom 1917—1922.*

[4] For a critical analysis of Lenin's theory of the cultural revolution see Claudin-Urando, C. (1977): *Lenin and the Cultural Revolution.* Also Lewin, M. (1969): *Lenin's Last Struggle*; Sirianni, C. (1982): *Workers Control & Socialist Democracy.*

Whatever the true reasons for War Communism (1918—1921), it was often defended as corresponding to the essence of the future society. James McClelland has distinguished two long-term visions in War Communist policies,[5] actually corresponding to the two currents of Utopian Socialism (above, p. 19). *Proletkult* is the foremost example of putting the development of proletarian consciousness first. The other vision, trusting in revolutionizing the economy, was the one Lenin fundamentally shared, and it finally gained the upper hand. Leaving aside the wide variety of War Communist utopias and anti-utopias,[6] it is useful to take note of some expressions of War Communist ideology.

At the time of rewriting the Bolshevik party programme between 1917 and 1919,[7] Nikolai Bukharin, then the leader of the Left Communists, wanted to include a description of the socialist future in it. As this proposal was turned down by Lenin and others, Bukharin included such a description in *The ABC of Communism*, a commentary of the 1919 party programme written together with Evgenij Preobraženskij.[8] For the next ten years, this book was the single most important exposition of Bolshevik doctrine.

Bukharin and Preobraženskij naturally leaned heavily on earlier Social Democratic literature. Like Kautsky and Lenin before, *The ABC* subscribed to what may be called the Classical approach to socialist economics: the economic problems of socialism concern raising production and productivity through economies of scale, technical progress, investments and mass enthusiasm. As seen above, this had been the predominant way of thinking, but also a Neoclassical approach of planning for efficiency had at least partly surfaced. It can be seen in Marx's planning principle as well as in the utilitarianism of Černyševskij. Bukharin, with his emphasis on the degree of organization as a factor distinguishing societies,[9] complemented the Classical thinking with this Neoclassical approach. In *The ABC*, planning of socialist production as "departments of a single people's workshop" according to a general plan, is seen — as Bebel and Bogdanov had done before — as a task for statisticians.

Bukharin's theoretical analysis of the transition period is deepened in his next book,[10] that was highly appreciated by Lenin. The historian M. N. Pokrovskij

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5 McCelland, J. (1980): Utopianism versus Revolutionary Heroism in Bolshevik Policy: The Proletarian Culture Controversy. *SlRev* XXXIX:3, 403—425.

6 On these see Pethybridge, R. (1974): *The Social Prelude to Stalinism*, 22—72.

7 Carr, E. H. (1976): *The Bolshevik Revolution 2*, 88—100; Cohen, S. (1975): *Bukharin and the Bolshevik Revolution*, 61—78.

8 Bukharin, N.—Preobrazhensky, E. (1919): *The ABC of Communism*. The book has a valuable introduction by E. H. Carr. — In 1918 Bukharin published another book with tremendous circulation and putting forward a centralized nonmarket model of the socialist society. See Bucharin, N. (1918): *Das Programm der Kommunisten (Bolschewiki)*.

9 On this see Susiluoto, I. (1982): *The Origins and Development of Systems Thinking in the Soviet Union*.

10 Bucharin, N. (1920): *Ökonomik des Transformationsperiodes*.

counted it as being among the three major achievements of post-revolutionary social science.[11] Here, Bukharin's analysis revolves around the idea of equilibrium states separated by the ruptures of transition periods. Theories of the capitalist equilibrium had been written in value terms, while the theories of communist equilibrium were to be written in physical terms immanent to the future marketless economy. Neither here nor in his last major work — the textbook of historical materialism — does Bukharin risk further speculation on the equilibrium to come.[12]

Notwithstanding Bukharin's highly personal vocabulary, much of his analysis was widely shared. Quite generally, socialism was taken to mean a non-market organized economy, money was thought to whither away with better social accounting[13] and even compulsive labour was sometimes seen as being immanent to socialism.[14]

Worsening economic conditions made it necessary to take steps in the direction of planning. As the Bolsheviks had some pre-revolutionary calculations but only a little actual Russian experience to rely upon,[15] the German war economy became a more and more important example.[16] Among the politicians, Trotsky defended a holistic "unified plan", trade unionists stood for a plan based upon sectoral projections and Lenin finally won the day with GOELRO, a programme for electrifying Russia. GOELRO has been recently seen as a forerunner of present-day programme planning, but its partiality did not satisfy everybody. Kricman, a chronicler of the period, maintained that since there was no real planning,

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11 See Cohen, S. (1975): op.cit., 88. The other two achievements mentioned were *State and Revolution* and L. N. Kricman's nostalgic account of War Communism (Kritzman, N. (1924): *Die heroische Periode der grossen russischen Revolution*).

12 Bucharin, N. (1922): *Theorie des historischen Materialismus.*

13 Thus in Larin, I.—Kritzmann, L. (1920): *Wirtschaftsleben und wirtschaftlicher Aufbau in Sowjet-Russland 1917—1920*, 57—61.

14 Trotskij, L. (1921): *Kommunism och terrorn (Anti-Kautsky)*, 187—211; Szamuely, L. (1974): op.cit., 42—44; Knei-Paz, B. (1978): *The Social and Political Thought of Leon Trotsky*, 260—269.

15 Haumann, H. (1974): *Beginn der Planwirtschaft*, 13—29; Roosa, R. (1983): Russian Industrialists during World War I: The Interaction of Economics and Politics.

16 An important foreign example was the second edition of the book of Atlanticus-Ballod mentioned above (p. 27): Ballod, K. (1920): *Der Zukunftsstaat.* The book, which contained a detailed plan for electrifying Germany, was translated into Russian, widely propagated by Lenin and discussed in GOELRO-meetings. Ju. Larin, then an important economic functionary, later recalled how he used to have Imperial German policies as immediate example when preparing various War Communist Measures. Cited in Bogomazov, G. (1983): *Formirovanie osnov socialističeskogo khozjajstvennogo mekhanizma v SSSR v 20—30-e gody*, 33.

War Communism was not socialism, but an "anarchic proletarian natural economy".[17]

At the same time, also Soviet economists were searching for the foundations of planning. While some economists put forward proposals for demonetarized planning and accounting,[18] others concentrated on the methodology of centralized planning. One of them, the Hungarian Evgenij Varga — the future leading Soviet specialist on the capitalist economy — generalized about the short socialist experience of his native country.[19] Varga's planning scheme proceeded from the knowledge of all existing means of production. The rate of investment would be decided upon next and a prority-schedule drawn up for the needs of consumption and production. Finally, the means of production would be allocated following a "bottle-neck" principle amounting to a relative scarcity consideration. Some deliberation would be left for decision makers and — in the concrete production programmes — for local decision making. Interestingly, Varga also proposed drawing up plans contingent upon international politics and other exogenous factors.

The ideas of S. G. Strumilin, also a later leading economist, are of even greater interest for this study.[20] He seems to have been the first Soviet economist adopting the Neoclassical approach to the economics of socialism. Here Strumilin anticipated the ideas of SOFE, which he was to criticize severely decades later.

Following Bogdanov and Bukharin, but without mentioning them, Strumilin equated social development with growing rationality and an increasing degree of organization. While Bogdanov and Bukharin had rested content with the principles of this approach, Strumilin bases explicit planning thought on this approach: "On the most general level the problem of planning is the problem of the most beneficial use of the social means of production. Concretely, this leads to solving a mathematical problem on how to allocate the productive resources of the country so as to bring about the maximum satisfaction of social needs at a minimum of

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17 Kritzman, L. (1924): op.cit., 186—204. On early planning and GOELRO see Haumann, H. (1974): op.cit.; Zaleski, E. (1971): *Planning for Economic Growth in the Soviet Union, 1918—1932*, 29—40; Carr, E. H. (1976): op.cit., 358—380; Zvezdin, Z. (1979): *Ot plana GOELRO k planu pervoj pjatiletki*, 15—30; Pšeljaskovskij, V. (1969): Elementy teorii rosta v leninskom plane elektrifikacii Rossii. *EMM* V:2, 172—182.

18 See Leichter, O. (1923): *Die Wirtschaftsrechnung in der sozialistischen Gesellschaft.* Also Szamuely, L. (1974): op.cit.; Haumann, H. (1974): op.cit.; Bogomazov, G. (1974): *Marksizm-leninizm i problemy tovarno-denežnykh otnošenii v period stroitel'stva socializma v SSSR*, 64—76; Hoff, T. (1938): *Economic Calculation in the Socialist Society*, Ch. 4,5; Širokorad, L. (1983): *Ideologičeskaja bor'ba i razvitie političeskoj ekonomii socializma v SSSR v perekhodnyj period*, 8—31.

19 Varga, E. (1920): Problemy ekonomičeskoj politiki pri proletarskoj diktature; Remington, T. (1982): Varga and the Foundation of Soviet Planning. *SovStu* XXXIV:4, 585—600.

20 Strumilin, S. (1920—21): Problema trudovogo učeta. *Ekonomičeskaja žizn* 237 (23. 10.), 284 (17.12.), 289 (14.12.), 14 (22.1.). These writings are included in the 1925 edition of Strumilin's *Problemy ekonomiki truda*, but — for reasons to become plain later — not in the editions of 1957 and later.

labour costs." This approach, Strumilin continues, does not mean adopting the subjectivist views of the Austrian school of economics. Contrary to opinions that the thoughts of Marx had no relevance to socialism — these opinions had been aired by A. Čajanov, the student of the peasant economy — Strumilin pointed out that Marx himself had written how socialist plan would be based on comparing labour costs and social "useful effects" (above, p. 23). Strumilin concluded that value and the utility of social commodities are the basic information needed for a rational plan adding that this approach was also immanent to the concept of "socially necessary labour time" which Marx uses in *Capital*, Vol. III.[21]

After further dispelling any clouds of suspected subjectivism with the Weber-Fechner experiment and the work of Bernoulli, Strumilin proceeded to present his planning problem mathematically. Basically, he saw the society as maximizing its Degree of Organization, which was defined as social utility multiplied by the amount of population and divided by total labour input. Total social utility is supposed to be the sum of the social utilities of commodities (not the subjective individual utilities) given by the logarithms of labour inputs producing these commodoties. The idea here is that declining but positive marginal subjective utilities imply increasing scarcity and higher total utility with increasing labour inputs. The utilities of commodities thus estimated by labour inputs are further corrected for differences in productivity and weighted by indicators of the intensity of the needs for different commodities. Supposing that these indicators, labour inputs and productivity levels are known, maximization gives results interpreted to mean that the "...maximum satisfaction of social needs is attained when the production and distribution of goods is organized in the society in proportion to the corresponding needs of different population groups and of the society".

The result, Strumilin admitted, is not new, but he claimed to have been the first to have derived it from a maximization planning problem.[22] Strumilin also claimed that following this line of thought — sketched here in its outline — allows several well-known principles, like that of Marx on the communist distribution, to be interpreted in a new light. Thus Strumilin practically proposed a new point of departure for conceptualizing the economic problems of socialist society.

Strumilin's articles are not remarkable as economic theory, and many other interesting ideas of planning theory also appeared in the Soviet press in the years of War Communism. But Strumilin seems to have been the first consistent

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21 A word of explanation may be in order. In *Capital*, vol. I Marx has the so-called "technical" version of socially necessary labour-time: it is the technically average labour-time within a branch (with the restriction that the commodity produced is salable). The "social" version of *Capital*, Vol. III — according to one interpretation — defines socially necessary labour-time as the labour-time necessary to produce the commodity at an equilibrium point. Demand thus would be a determinant of value.

22 Whether or not Strumilin knew of Barone's classical article is not an issue to be raised here.

proponent of the Neoclassical approach to planning in Soviet literature, and his later eminence in Soviet economics makes his approach even more remarkable. Strumilin probably relied upon Bogdanov and Bukharin and could look for support from Marx, but his immediate sources must have been from neoclassical economics. The former pupil of Tugan-Baranovskij and Struve must have known neoclassical value theory well, and Tugan-Baranovskij in particular had participated in a pursuit popular among Russian economists: unification of the theories of value of Ricardo and Jevons.[23] As pointed out above, *Capital*, Vol. III, does give some foundation for such a pursuit. Two versions of Marxian value theory continued to be debated in the Soviet Union of the 1920's.[24] It was the "technical" version of *Capital*, Vol. I, seeing the magnitude of value as being solely determined by the technical data of production, that finally prevailed. The "social" version of *Capital*, Vol. III, giving room for the influence of needs and demand, was obviously none too suitable to a centrally planned economy with output plans fixed from above.

The discussions about interpreting the Marxian value theory flared up anew in the 1960's. The proponents of the social version then included many optimal planners trying to connect their approach to the Marxist heritage. Quite expectedly, they were often accused of following Tugon-Baranovskij. The part played by Strumilin in this development is interesting. His approach in 1920 was severely criticized during the Stalinist revolution, and seemingly Strumilin himself abandoned it. Anyway, when the optimal planners of the 1960's generalized SOFE from the efficiency thinking once so central to Strumilin, he was one of their fiercest critics![25] Strumilin thus seems to have been an interesting phenomena in Soviet economics: a precursor who forgot himself.

The Neoclassical approach to economic planning was alive in the USSR until the late 1920's and was primarily proposed by non-Bolshevik experts. Thus L. N. Litošenko equated the efficient use of economic resources with the maximum satisfaction of needs, and explicitly criticized seeing growth as a goal. By the 1920's these views were criticized by Strumilin, Fel'dman and others both as antisocialist (in not understanding the tasks of industrialization) and as anti-Marxist (in not

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23 Tugan-Baranowsky, M. (1905): *Theoretische Grundlagen des Marxismus*. The same wide tradition also includes Struve and V. K. Dmitriev, Russia's first mathematical economist. Dmitriev was to be resurrected when Russian precursors for post-Stalinist Soviet mathematical economics were searched for in the 1950's.

24 On this see Manevič, V. (1975): *Razvitie teorii planovogo cenoobrazovanija v sovetskoj ekonomičeskoj literature*.

25 Strumilin never later referred to these writings, but others did. See, e.g., Fedorenko, N. (1974a): O sozdanii i razvitii sovetskoj ekonomiko-matematičeskoj nauki. *EMM* X:3, 419—431, esp. pp. 421—422. Another 1920 writer relying upon utility theory, Al'b. L. Vainštein, was an important scholar in CEMI in the 1960's. He does not seem to have later referred to the discussions of 1920.

understanding the primacy of production over needs and consumption).[26] The socialist and Marxist approach was thus equated with the Classical approach, but it did not survive the Stalinist revolution either, as will be seen below.

2.2. *Preparing for Soviet socialism*

War Communism lead to an economic, social and political catastrophe and had to give way to the New Economic Policy (1921—1928). This experience was one mainspring of the economic discussions of the 1920's. Another was even more dramatic: the Western revolution, always taken to be a necessary precondition of Russian socialism, never came. At the same time, NEP was causing new problems. The variety of ideological viewpoints was originally wide in the Soviet Union[27] and so were the topics of economic discussions: War Communism and NEP, the possibility of socialism in a separate country,[28] the economics of peasantry[29] and of industrialization[30] are perhaps the best known. More specific proposals were often connected with the author's image of future socialism. The peasant utopia of Kremnev-Čajanov — set in 1984 — is a well-known example.[31] The leftist Preobraženskij also wrote of utopias centralized and demonetarized,[32] while Bukharin now had an definite image of a commune-state.[33]

The first experiences of planning, with wide margins of realization and repeated belatedness,[34] were hardly promising. But with recovery, experience and resources,

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[26] On Litošenko see Dovbnenko, N. (1983): *Problema ekonomičeskoj effektivnosti socialističeskogo proizvodstva v literature 20—30kh godov*, 89—93. L. P. Juškov was a late 1920's theoretician of efficient planning and khozraschet later often referred to by optimal planners. See Ellman, M. (1971): *Soviet Planning Today*, xiv.

[27] Utechin has listed Leninism, Bogdanovism, Social Democracy, Machajevism, Neopopulism, Anarchism, Technocratism, National Bolshevism and Fjodorovism as ideological currents in post-revolutionary Russia. Utechin, V. (1958—59): Bolsheviks and Their Allies After 1917: The Ideological Pattern. *SovStu* X:2, 113—135.

[28] Carr, E. (1970): *Socialism in One Country I*; Cohen, S. (1975): op.cit.; Day, R. (1973): *Leon Trotsky & The Politics of Economic Isolation*; Day, R. (1981): *The "Crisis" and the "Crash"*; Tucker, R. (1974): *Stalin as Revolutionary, 1879—1929.*

[29] Solomon, S. (1978a): *The Soviet Agrarian Debate*; Lewin, M. (1975): *Russian Peasants and Soviet Power*; Figurovskaja, N. (1983): *Razvitie agrarnoj teorii v SSSR. Konec 20-kh—30-e gody.*

[30] Erlich, A. (1967): *The Soviet Industrialization Debate, 1924—1928*; Lewin, M. (1974): *Political Undercurrents in Soviet Economic Debates*; Spulber, N. (1964): *The Soviet Strategy for Economic Growth.*

[31] Kremnev, I. (pseudonym of A. V. Čajanov) (1920): The Journey of My Brother Alexei to the Land of Peasant Utopia. *Journal of Peasant Studies* IV (1976—7):1, 63—116.

[32] Preobraženskij, E. (1922): *Ot NEP'a k socializmu*; Preobrashenskij, E. (1924—25): *Die sozialistische Alternative.*

[33] Bukharin, N. (1928): Notes of an Economist. *Economy and Society* VIII (1979):4, 473—500.

[34] See Zvezdin, Z. (1979): op.cit., 54, 73.

planning was becoming economically reasonable.[35] Balances were drawn up, and Barengol'c in particular came near to formulating the first principles of input-output analysis.[36] However, no national balances could be formulated for the first five-year plan.[37] Another important advance was the by now famous growth model of G. A. Fel'dman.[38] Finally, Soviet planning thought was moulded by the victory of the activist teleological planning ideology over the genetic school stressing the importance of the existing situation. In the late 1960's Strumilin would remind some mathematical economists that their ideas were too close to those of the genetists, found guilty of anti-Sovietism in the beginning of the 1930's.[39]

Existing research is still insufficient to give an unequivocal judgment of the quality — given the social framework and problems to be solved — of "The Soviet Economists of the Twenties". First of all, they were a heterogenous group, combining — as Davies has pointed out[40] — pre-revolutionary Russian economics and statistics, Continental Marxism and American empirical research. Even then, it is easy to point out appreciable advances in addition to those mentioned above: the development economics of Preobraženskij, the peasant studies of Čajanov and even some mathematical economics[41] are among them. Furthermore, many researchers — Western like Lewin and Susiluoto and Soviet like Valovoi and Lapšina[42] — have seen important parallels between the plan and markets literature of NEP and the reformist economists of the 1960's. Belief in the necessity of markets to transmit information and provide incentives was common to both periods. Growing Soviet literature in the history of economics is one indication of this interest.

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35 On the development of planning see the sources cited in note 30 above and Carr, E. (1970): op.cit.; Carr, E.—Davies, R. (1974): *Foundations of a Planned Economy, 1926—1929*, 835—949; Kiričenko, V. (1974): *Dolgosročnyj plan razvitija narodnogo khozjajstva SSSR*; Zalkind, A.—Mirošničenko, B. (1980): *Očerki razvitija narodno-khozjajstvennogo planirovanija*; Pogrebinskaja, V. (1979): *Razrabotka metodologii general'nogo plana v konce 20-kh—načale 30-kh godov.*

36 *Modelirovanie narodno-khozjajstvennykh processov* (1973), 82—91, 113—121; Spulber, N.—Dadkhah, K. (1975): The Pioneering Stage in Input-Output Economics. *The Review of Economics and Statistics* LVII:1, 27—34.

37 Zvezdin, Z. (1979): op.cit., 214—215; Pogrebinskaja, V. (1979): op.cit., 83. As Holland Hunter has shown, the First Five-Year Plan was both infeasible and inconsistent.

38 Domar, E. (1957): *Essays in the Theory of Growth*; Beljanova, A. (1974): *O tempakh ekonomičeskogo razvitija SSSR*; Pogrebinskaja, V. (1979): op.cit.; Vainštein, A.—Khanin, G. (1968): Pamjati vydajušegosja sovetskogo ekonomista-matematika G. A. Fel'dmana. *EMM* IV:2, 296—299.

39 Strumilin, S. (1967): O "prognosakh" v optimal'nom planirovanii. *VE* 1, 146—149.

40 Davies, R. (1959—60): Some Soviet Economic Controllers. *SovStu* XI:3, 286—306.

41 For the last point mentioned see Smolinski, L. (1971): The Origins of Soviet Mathematical Economics. *Jahrbuch der Wirtschaft Osteuropas* II, 137—154. For a more cautious view see Johansen, L. (1979): Comment.

42 Valovoi, D.—Lapšina, G. (1972): *Socializm i tovarnye otnošenija*, 107—109.

But, on the other hand, the lack of a common frame of reference also had its drawbacks. Debates could be waged without a common language, as separate discourses. It was also a period of less than ten turbulent years, without proper statistics. Emigration took many economists, and even before the arrests spread — they started in 1928[43] — discussions had their political boundaries. Soviet economics was political from the very beginning. Obviously, the Soviet discussions of the 1920's are more important for the questions they raised than for the results they reached.

2.3. *Does a political economy of socialism exist?*

A question had to be addressed anew after the revolution: could a Soviet political economy of socialism — comparable to the classical political economy or to the theory of Marx — exist? The standard Marxist answer, shared by such otherwise widely differing thinkers as Hilferding, Luxemburg, Bukharin and Bogdanov.,[44] had been negative. As socialist productive relations would be transparantly simple, with essence and appearance coinciding, the future society would not give birth to a specific theoretical social science. In a planned, organized economy only economic geography and a descriptive study of organization would exist. Certain "general sociological" laws, corresponding to the general features of production mentioned by Marx, would naturally also exist. For example the Moscow University professor of political economy Aleksandr Kon — a thinker influenced by Bukharin and Bogdanov — regarded these laws as constraints on economic policies. But these laws were regarded as technical constraints and Bogdanov saw no specific economic constraints on developing productive forces in an organized society. Bogdanov's viewpoint was influential, as the textbook he coauthored with Skvorcov-Stepanov had a near monopoly on teaching political economy till the mid-1920's.[45]

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[43] Jasny, N. (1972): *Soviet Economists of the Twenties.*

[44] This is sometimes seen as Bukharin's idea (Treml, V. (1969): The Interaction of Economic Thought and Economic Policy in the Soviet Union. *History of Political Economy* I:1, 187—216; Wilczynski, J. (1982): *The Economics of Socialism*, 10—11) but it really was generally shared. See Hilferding, R. (1904): Böhm-Bawerk's Marx-Kritik; Bucharin, N. (1919): *Das Elend der subjektiven Werttheorie*, 51—54; Bucharin, N. (1920): *Ökonomik des Transformationsperiodes*, 9—10; Luxemburg, R. (1916): Einführung in die Nationalökonomie. *Gesammelte Werke*, Bd. V, 587; Bogdanoff, A. (1910): *A Short Textbook of Economics.*

[45] On Bogdanov see Susiluoto, I. (1982): op.cit. Books by Kon consulted are Kon, A. (1927): *O novoj "ekonomike" E. A. Preobraženskogo*; Kon. A. (1928): *Kurs političeskoj ekonomii. Čast' pervaja.* The latter was an officially accepted university textbook. Kon fell by Moscow in 1941. On the influence of Bogdanov and Skvorcov-Stepanov see Širokorad, L. (1977): *Die Politische Ökonomie des Sozialismus in der UdSSR während der Uebergangsperiode*, 63.

As pointed out above, the death of economics was not argued to be because of abundancy in Marxist orthodoxy. Neither was this idea an influence of Neo-Kantianism, as modern Soviet authors typically assert.[46] True enough, Neo-Kantians like Sombart or Tugan-Baranovsky also had a theory of the dying away of economics. They equated its object matter with causal laws and socialism with teleological actions. Not this, but the transparency of socialist production relations, however, is the reason for the death of economics given by orthodox Marxism and Soviet literature of the 1920's.

The reason for the modern Soviet interpretations does not come from the 1920's but from the 1940's, when the reason given for a political economy of socialism was, indeed, the existence of objective economic laws in the Soviet Union. Thus the Marxist objection to a political economy of socialism was never really faced. Therefore, it is better forgotten.

With these limitations of the standard interpretation, the debates on the possible existence of a political economy of socialism (PES) have been often described.[47] Here, only some comments are necessary.

Soviet interpretations typically give a crucial role to the comments Lenin made on Bukharin's book about the transition period. However,[48] the significance of these notes, first published in 1929,[49] is by no means self-evident. Contrary to what modern Soviet sources claim, Lenin was highly appreciative of Bukharin's book. He did not like Bukharin's abstractness and sociologicisms, but concerning a political economy of socialism he had just two disagreements. Referring to Engels on political economy in "the wide" and in "the narrow" senses, Lenin saw Bukharin's limiting of political economy to just market economies as a "step backwards" (compare above, p. 18). Furthermore, Lenin did not accept Bukharin's remark about political

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46 See Valovoi, D.—Lapšina, G. (1972): op.cit., 361—367 or any other standard Soviet account.

47 See Širokorad, L. (1977): op.cit.; *Geschichte der politischen Ökonomie des Sozialismus, Grundrisse* (1972); *Beiträge zur Geschichte der politischen Ökonomie des Sozialismus* (1975). *Geschichte* is the first Soviet history of the political economy of socialism. An enlarged and revised second edition came out in 1983: *Istorija političeskoj ekonomii socializma* (1983). There is an early Western account: Kaufman, A. (1953): The Origin of "The Political Economy of Socialism". *SovStu* IV:3, 243—272.

48 Gransow, B.—Gransow, V. (1978): Ursprunge der Politischen Ökonomie des Sozialismus. *SOPO* 43, 55—78. Also see Cohen, S. (1975): op.cit., 96—97.

49 Lenin, V. (1920): Zamečanija na knigu N. I. Bukharina "Ekonomika perekhodnogo perioda". *Leninskij sbornik* XI, 345—403. Bukharin was then the editor of the *sbornik*, and Medvedev deduces that the notes were published on his initiative. See Medvedev, R. (1980): *Nikolai Bukharin, The Last Years*, 50. This possibility is in line with what is known of Bukharin's political acumen. On a very selective citation the notes, which have not been published in the Soviet Union since 1931, are still used against him. For an attempt to explain Lenin's high praises of Bukharin in the notes as just "a burlesque parody of Bukharin's quasiscience" see *Istorija* ... (1983), op.cit., 587—588.

economy dying with capitalism: for example, the equilibrium conditions of reproduction would hold in communism, too.

With this, the real scope of disagreement is left unclear. Aleksandr Kon had thought in 1927 that the equilibrium conditions are an example of the general laws of production mentioned by Marx and valid in any society.[50] Indeed, Lenin's example had been used by Rosa Luxemburg in 1913,[51] and the 1929 printing of the textbook by Bogdanov and Skvorcov-Stepanov also reminded its readers of the general laws.[52] However, only once had Skvorcov-Stepanov proposed that the general laws might be the subject of a specific science.[53] He had only received meagre support. Both Luxemburg, Kon and the textbook by Bogdanov and Skvorcov-Stepanov restricted political economy to societies with reified production relations.

Not only had the existence of general laws been admitted, but the Marxian schemes of reproduction as well as his value theory had been generally used in Soviet discussions. Strumilin was even calling for more Marxist orthodoxy in this respect in 1928.[54] Even this had not changed the theory of the dying away of economics.

Therefore, when Bukharin called for a normative theory of allocation to be called the theory of socialist planned economy in 1930, he was not making a big concession. Problems of allocation were just given the status of an object of theory. Bukharin's characterization of this theory is of interest. It would be normative, as "in an organized, socialist economy the laws of social development are cognized, and as such they are implemented by the collectively organized social will".[55] The same point was repeated word for word within Stalinist orthodoxy some fifteen years later. But as "the collectively organized social will" had in the meantime been personified, Bukharin's normative approach had just become obsolete.

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50 Kon, A. (1927): op.cit., 80—81.

51 This is probably Lenin's source for his example. See Luxemburg, R. (1913): Akkumulation des Kapitals. *Gesammelte Werke*, Bd. V, 53.

52 Lapidus, I.—Ostrovitjanov, K. (1929): *Političeskaja ekonomija v svjazi s teoriei sovetskogo khozjajstva*, 437—438. In the fifth edition, just a year later, the authors made a self-criticism for using Bukharinist terminology but still insisted upon the nonexistence of political economy in communism. Ostrovitjanov was to become a leading economist, member of the Party Central Committee, vice-president of the Academy of Sciences and an opponent of SOFE.

53 See Skworzow-Stepanow, I. (1925): Was ist politische Ökonomie? The only ones to support Skvorcov-Stepanov were the historian Pokrovskij and Bogdanov, who no doubt had his own tektology in mind as the political economy in wide sense. As an example of good criticism of the proposal see Lapidus, I. (1931): *Predmet i metod političeskoj ekonomii*, 86—88.

54 See Strumilin, S. (1967): op.cit.

55 Cited in Kaufman, A. (1953): op.cit., 249.

2.4. *A Cultural Revolution in economics?*

The years 1928—1931, with their collectivization, the start of rapid industrialization and the "Cultural Revolution", were a sharper change in several respects than 1917—1921 had been. This is also true of science and culture, which underwent the Cultural Revolution. This concept as applied to the Stalinist revolution differs from that used by Lenin concerning overcoming Russia's backwardness (above, p. 41). For later historians, the Cultural Revolution of 1928—1931 has been "a political confrontation of "proletarian" Communists and "bourgeois" intelligentsia, in which the Communists sought to overthrow the cultural authorities inherited from the old regime. The aim of the Cultural Revolution was to create a new "proletarian intelligentsia". The method of the Cultural Revolution was "class war" ".[56]

Traditionally, the Soviet cultural developments in the 1930's have been seen as a purge originated and led by the Party and aiming at conformity.[57] The concept of Cultural Revolution as used by Fitzpatrick and others brings new features to the forefront. Compared to the traditional view, it makes more room for grass-root activities and also allows for a more precise timing. In many fields a process of normalization took place in about 1931, when revolutionary fever was turning all too disruptive. All scientific and cultural activities now had to serve the state-building process, which should be seen as the socio-economic essence of the Soviet 1930's.[58]

The rupture of 1928—1931 has been studied in, for example, education, psychology and historiography, but not in economics.[59] Was there a Cultural Revolution in economics? Our understanding of the later Soviet PES depends largely on the answer given to this question.

The negative answer of Alec Nove seems well founded.[60] There are some features typical to the Cultural Revolution that appear in economics too. Thus, firing prominent economists started in 1928 with Kondrat'ev and his colleagues. Sentences

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[56] Fitzpatrick, S. (1978): Cultural Revolution as Class War.

[57] Classical examples are Graham, L. (1967): *The Soviet Academy of Sciences and the Communist Party, 1927—1932* and Wetter, G. (1953): *Der dialektische Materialismus.*

[58] For a short discussion on the cultural revolution see Barber, J. (1981): *Soviet Historians in Crisis, 1928—1932*, 6—11. On the 1930's as state-building process see Lewin, M. (1976): Society and the Stalinist State in the Period of the Five-Year Plans. *Social History* 2, 139—175.

[59] *Cultural Revolution* ... (1978), op.cit.; Barber, J. (1981): op.cit.; Barber, J. (1979): The Establishment of Intellectual Orthodoxy in the USSR, 1928—1934. *Past and Present* 83, 141—164; Bailes, K. (1978): *Technology and Society Under Lenin and Stalin*; Enteen, G. (1978): *The Soviet Scholar-Bureaucrat*; Joravsky, D. (1970): *The Lysenko Affair.* Not all of these writers accept the cultural revolution thesis, at least in the form presented here.

[60] Nove, A. (1979b): Review of *Cultural Revolution* ... *SlRev* XXXVIII:1, 114—115.

were later given to both leading non-Marxist (Kondrat'ev, Bazarov, Groman) and Marxist (Rubin) authorities.[61] Some publications do show a clear classwar attitude,[62] and several young rising economists came from workers' faculties. But the case of economics still differs from the general concept of Fitzpatrick. In economics the debating sides were often on a common footing. This is true not only of the rural studies analysed by Solomon,[63] but also of teleological and genetist planners, and also of Bukharin and Preobraženskij with their equilibrium approaches.[64] Both "idealists" and "mechanists" in Marx-studies shared the basic tenets of Classical Marxism. Only a strained interpretation could find an antagonistic difference of opinion in any of these cases.

Economic debates typically ended with both sides losing. This happened in rural studies after the beginning of collectivization. Both idealists and mechanists were condemned by Stalin himself.[65] And in planning even Strumilin lost his influence after having regarded the first Five-Year Plan as infeasible.[66] Feasibility was a goal shared by teleologists as well as by genetists. Fel'dman, the superteleologist, was also sentenced.

Neither did the new economists in prominence correspond to Fitzpatrick's image of fierce proletarian revolutionaries. Ostrovitjanov was more dull than ultra-Marxist. The 1929 edition of his and Lapidus' textbook cites both Trotsky and Bukharin perfectly correctly and even approvingly while clearly lacking any pronoun-

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61 See Jasny, N. (1972): op.cit.

62 See *Protiv kondrativščiny* (1931).

63 Solomon, S. (1978a): op.cit.; Solomon, S. (1978b): Rural Scholars and the Cultural Revolution.

64 This is pointed out in Smith, K. (1979): Introduction to Bukharin: economic theory and the closure of the Soviet industrialization debate. *Economy and Society* VIII:4, 446—472.

65 Stalin, J. (1930): Otvet tovariščam sverdlovcol. *Sočinenija* T. 12, 190. Stalin, it should be pointed out, was not acting as *deus ex machina*, effectively though he did end any discussions. In addition to the mechanists and the idealists there also was a group of economists calling for struggle on both fronts. Already in late 1929 both the economists of *Institut Krasnoj Professury* and the *kafedra* of political economy of the Sverdlov Communist University had approved resolutions calling for such a fight with the main emphasis on struggle against "right wing mechanists". After that, the party organization of the former organization turned to the Central Committee asking for advice. Both some idealists and the righters on two fronts participated in the discussion, the result of which were published — signed by V. Miljutin and B. Borilin — in numerous journals in early 1930. Stalin's final dictum reaffirmed the authority of these victors. A. I. Paškov, obviously one of the participants in the Central Committee discussion, regards this history as proof of the fact that the debate between the mechanists and the idealists was not ended by an administrative intervention from above, but "by the economists themselves, with the help of the CC of CPSU". See Paškov, A. I. (1970): *Ekonomičeskie problemy socializma*, 82—83; Valovoi, D.—Lapšina, G. (1972): op.cit., 21—23.

66 Davies, R. (1959—60): op.cit., 294.

ced revolutionarity spirit. As late as in 1931, Lapidus reviewed recent debates in a businesslike manner and also recommended both "idealist" and "mechanist" books for reading.[67] Furthermore, the normalization of 1931 did not take place in economics.

These characteristics of the case of economics make the rupture between 1928 and 1931 much more pronounced in economics than it was in many other fields of social studies. The economics of the 1920's had in most cases been made superfluous in *all* of its varieties. This is the direct result of two factors. The first of them has been called the "disappearance of the economic realm into politics", while the second is made up of the ideological needs of the Party-State to be built. These factors and their influence on economics are characterized below. Together they did mean the death — or at least near-death — of Soviet economics and contributed in a decisive way to the birth of PES.

2.5. *Preparing for the political economy of socialism*

In the very beginning of the 1930's, the existence of other than technical and resource constrains on economic policies was typically denied. As an example, this is how Fel'dman explained the methodology of planning:

> Our point of departure is that the Soviet economy is both generally and especially in the field of the distribution of national income a subjective economy. Therefore, in determining the roads of its material development, we must proceed by taking mainly into account not the laws determining the development of some "nonsubjective" economy, but those laws of nature and especially of production which are independent of any given societal form.[68]

Wlodzimierz Brus has regarded this point of view as typical for all Marxist-Leninist PES.[69] On the other hand, A. I. Paškov, a veteran Soviet political economist and historian of economic thought, admits that at the beginning of the 1930's Bolshevik

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[67] Lapidus, I. (1931): op.cit. Neither does, e.g., Miljutin, the sometime Menshevik who withdrew from the Bolshevik Central Committee in November 1917 protesting for a coalition government, was later a candidate member of the Central Committee, member of the Central Control Committee, vice-chairman of the Communist Academy in 1925—27, later in leading positions in the Planning Committee and the Central Statistical Office, seem to correspond to the idea of a fiery young proletarian Marxist-Leninist. On the other hand, Miljutin died in 1937 and Borilin in 1939. Thus, while some victors of these debates were on the top of Soviet political economy to stay, these two were not.

[68] See Pogrebinskaja, V. (1979): op.cit., 59. The same idea was put by Strumilin as follows: "... even by its basic idea a planned economy does not know, in addition to technical-economic norms, physical-chemical laws and other determinants of the same kind, any other "objective", in other words independent of social will, "social" laws". Cited in *Geschichte* ... (1972), op.cit., 54.

[69] Brus, W. (1972): *Wirtschaftsplanung*, 115.

economists did belittle objective constrains to policies, but defends this because of the political situation: in a revolutionary phase talking about constraints is counterrevolutionary.[70]

L. Gatovskij, another veteran, now claims to have defended the existence of objective economic laws then.[71] And it is true that in 1930—1932 both Gatovskij and Ostrovitjanov were writing about objective necessities realized by planning and policy.[72] This was also, as was seen above, what Bukharin wrote at the same time. These viewpoints were part of the so-called "Theory of Soviet economy", obviously meant to be the reaction to Stalin's December 1929 call for a constructive answer to both idealists and mechanists as well as the correct Party-line interpretation of the socio-economic upheaval taking place.[73] But neither the articles of Gatovskij nor those of Ostrovitjanov tell what is to be understood by these constraints. Actually, as Gatovskij equated the theory of Soviet economy with a "general theory of national economic planning" and further saw planning as "the basic law of motion" of the transitory economy, his idea also seem to have belonged to the "cult of planning", of which L. D. Širokorad has written: only technical and resource constraints were taken to exist.[74] Actually, the writings of this period are the ones which could be seen as denying the existence of economic laws because of the teleology of planning. This might be seen here as the influence of Neo-Kantianism, which is not present in the Marxist orthodoxy of Hilferding, Luxemburg and others. The standard Soviet interpretation of the thesis of the withering away of political economy thus has some empirical backing, but only in the specific circumstances of 1930—1932.

The theory of Soviet economy, which had been taught in the universities in the early 1930's, was replaced in 1933 by "Economic policy". If the former had some theoretical ambitions, the latter was basically descriptive. Only 15 % of all study time was reserved for a theoretical introduction. Two thirds were given to

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70 "We must not forget that the above-mentioned thoughts of the economic role of the Soviet state and proletarian dictatorship were decisively shaped by struggle against the ideas of bourgeois and opportunistic ideologists, according to whom the development of Soviet economy would take place automatically, spontaneously following the "eternal" laws of capitalism, and that the main essence of the transition period was shown to be the conscious, planned building of the economy within proletarian dictatorship." Paškov, A. I. (1970): *Ekonomičeskie problemy socializma*, 79. Actually Paškov here defends ideas mainly put forward in 1933—34 as being the result of the political situation of 1929—30.

71 He republished some of his early articles in 1979 with generous commentaries — and some omissions. See Gatovskij, L. (1979): *Voprosy razvitija političeskoj ekonomii socializma.*

72 Ostrovitjanov, K. (1931): Plan i stikhija na raznykh etapakh nepa. *Izbrannye proizvedenie*, T. 2 (1973), 5—6.

73 Stalin, J. (1929): K voprosam agrarnoj politiki v SSSR. *Sočinenija*, T. 12, 172.

74 Širokorad, L. (1977): op.cit., 114.

the current five-year plan and the rest to the history of the national economy.[75] The change of emphasis is obvious. It had to have its reasons.

In path-breaking articles Moshe Lewin has analysed the Soviet early 1930's as a period when the economic realm almost disappeared into politics.[76] The First Five-Year Plan and collectivization took the country into a crisis by 1930, from which the centralized state grew. The Party-State and its bearers made themselves agents of historical change and in reaction to the societal crisis created a new society reshaping themselves at the same time. The Bolsheviks thought that they could take any fortress — as Stalin liked to say — and seeing no economic laws was a reflection of this fact. This was understood at that time by many economists both in the Soviet Union and abroad. Thus Frank Knight, the Chicago economist, wrote in 1936 that the problems of a collectivist economy are problems of consciously guided change and "not problems of economic theory, but political problems, and ... the economic theorist as such has little or nothing to say about them".[77] Evgenij Slutskij, the foremost neoclassical economist in the Soviet Union, saw — so it was at least later told — that in socialist economy his object of study had disappeared, so he switched to studying mathematical statistics.[78] Also an opinion existed at the time that statistics in socialism would wither away: planned socialism would know no random processes.

The emerging planners were either party apparatchiks or, especially later, engineers. Planning and managing the economy was for them a technical matter of mobilizing resources. Characteristically, the collected writings and speeches of the Gosplan head V. V. Kuibyšev from 1930—1935 never referred to economic science even once. In 1931 he made his famous reference to the "arithmetical-statistical deviation" in planning. Plans had been too abstract and general, while lacking detailed statistical foundations.[79] In a word, they had not been technically detailed enough.

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[75] *Geschichte* ... (1972), op.cit., 29—33; Labutin, A. (1981): Teorija sovetskogo khozjajstva i kurs "ekonomičeskoj politiki" kak stupenija formirovanija političeskoj ekonomii socializma v SSSR (1930—1936 gg). In *Iz istorii političeskoj ekonomii socializma v SSSR* (1981), 156—171.

[76] Lewin, M. (1976): op.cit.

[77] Knight, F. (1936): The Place of Marginal Economics in a Collectivist System. *AER*, Papers and Proceedings XXVI:1, 255—266.

[78] Volkonskij, V.—Konjus, A. (1963): Kommentarii k rabote E. E. Slutskogo. In *Ekonomiko-matematičeskie metody, Vyp. 1.* (1963). *Narodnokhozjajstvennye modeli. Teoretičeskie voprosy potreblenija*, 271. Whether this was or not Slutskij's real reason is not important here: it might have been.

[79] Kuibyšev, V. (1937): *Stat'i i reči, T. V*, 1930—35, 78. For a portrait of young Soviet planners see Miller, J. (1964): Soviet Planners in 1936—37. As late as in 1975 only one of the seventeen leading Gosplan officials had received an economic education. Tretyakova, A. —Birman, I. (1976): Input—Output Analysis in the USSR. *SovStu* XXVIII:2, 157—186.

Starting with the 1930's, the Soviet economy was not planned in the sense that the activities of different economic agents had been rationally coordinated in accordance with socialist democracy.[80] It was not planned in the textbook sense of implementing a feasible and consistent plan[81] nor in the totalitarian sense of fulfilling political decision makers' daily instructions — even if this was sometimes claimed also by the servants of the system.[82] But it was centrally managed in a wider sense: the state, though not a monolith, was an agent of change building a new society.

This had obvious implications for economics. All previous conceptions of planning had to be demolished. This meant, among other things, showing the "objectively wrecking nature" of Strumilin's planning ideas of 1920. So it was found that Strumilin's idea had been "universal-mathematical", while everybody could see that really existing planning was by no means solving a mathematical problem. Strumilin had forgotten about class struggle, the primacy of politics, the creative initiative of the masses and the leading role of the party. All the talk about social engineering — that old Fourierist dream — was now seen to have been a bad mistake. Caring about the market equilibrium, as Strumilin had done, was taken as a programme of capitalist restoration.[83]

The message that comes through from articles like the one criticizing Strumilin is clear enough. Economists should not look for constrains or measuring rods for economic policies. It is often stressed that the key to Stalinist policies was unpredictability, and, in this sense, arbitrariness. This lesson was taught to the economists in the early 1930's. Stalin had already put forward his requirements for good theory. It should abstain from "talmudistic scholasticism" and concentrate on raising

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80 This was a criticism developed at the time by Rakovskij and several emigrated Left Mensheviks. See Filtzer, D. (1981): Translater's Afterword, *Critique* 13, 53—54.

81 Zaleski, E. (1971): op.cit.; Zaleski, E. (1980): *Stalinist Planning for Economic Growth, 1933—1952*; Dunmore, T. (1980): *The Stalinist Command Economy.*

82 Kuibyčev's description of the Second Five-Year Plan is well worth citing in length: "The building programme om metallurgical factories is laid down by comrade Stalin. Comrade Stalin studied in depth and with attention to detail each factory and pointed out those construction objects that must have priority during the second five-year period. The programme of building factories for transportation equipment was also determined by comrade Stalin. Creating the maintenance network of NKPS (the railroads — P.S.), building many repair shops for locomotives and wagons — comrade Stalin pointed out that programme. Building the car factories — it was actually written in comrade Stalin's hand which factories must be built, where and in which size. (This continues on the marine fleet, synthetic rubber, aluminium, airplanes, railways, roads and canals — P.S.) I don't have the possibility to enumerate all those sectors of socialist construction, on which comrade Stalin gave *the concrete programme of development.*" Kuibyšev, V. (1937): op.cit., 562. Who would dare to criticize such a plan?

83 All this is found in Gladkov, I. (1933): Protiv opportunizma v teorii planirovanija. *PKh* 5—6, 263—277. Gladkov, also later a leading Stalinist gate-keeper, refers both to Strumilin's 1920 articles and to a 1932 book of his.

enthusianism: "It is well known that theory, if it really is theory, gives men of practice the ability to orient themselves, clarity of view, firmness in work, belief in the victory of our cause."[84]

The only tasks left for economists were those of apology, explication and propaganda. It was repeated again and again that behind political deviations lay a deviation from Marxism-Leninism. This was also read vice versa: behind any deviation from doctrinal orthodoxy lay the potential for political deviation. The Czech-born Ernst (Arnošt) Kol'man, a central figure in the Cultural Revolution in natural sciences, characterized the relation between natural scientists and political leaders thus:

> Now it is clear to everyone that the basic lesson of the philosophical discussion is this: philosophy, and every other science as well, cannot exist in the conditions of the proletarian dictatorship separate from the Party leadership. Now it is clear to everyone that all efforts to think of any theory, or of any scholarly discipline, as autonomous, as an independent discipline, objectively signify opposition to the Party general line, opposition to the dictatorship of the proletariat.[85]

One tool of economic thinking that was deemed incongruous with these developments was equilibrium thinking. It was now interpreted to mean forgetting about dialectical contradictions like class struggle and also taking a static viewpoint. Nikolai Voznesenskij, the rising economic manager, explained the difference between equilibrium and proportionality as follows: "Reproduction is not equilibrium — it is movement realized in contradictions, in fierce class struggle... A balance, which is created as a part of socialist planning, must localize "bottle-necks" not for adopting to them, but for doing away with them, for fighting actively to abolish them, for strengthening socialist proportions."[86] In this way the Soviet economy was about enlarging output, not about adopting to scarcity and — this is the point — these goals were seen as contradictory. Even mentioning the word equilibrium brought the danger of being branded as a Bukharinist and a counter-revolutionary. The Neoclassical approach to planning was thus branded as being illegal. Here are the roots of future opposition to the efficiency-thinking of optimal planners. Voznesenskij's words about enlarging bottle-necks and not adopting to them were to be heard often even some thirty years later.

The mathematical methods of economics went the same way. As late as 1931, I. G. Bl'jumin, the leading analyst of Western economics, could differentiate between a right and wrong way of using mathematics in economics. After Kuibyšev had

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84 Stalin, J. (1929): K voprosam..., op.cit., 142.

85 Cited in Joravsky, D. (1978): The Construction of the Stalinist Psyche. Kol'man, the ultrastalinist who later emigrated to Sweden, wrote memoirs that were published posthumously. They are a disappointing source of information. Kolman, A. (1980): *Den vilseförda generationen.*

86 Cited in Pogrebinskaja, V. (1979): op.cit., 37.

condemned the arithmetical-statistical deviation in planning, it became more and more usual to see dialectics and formal logic as exclusive methods in the social sciences.[87]

The dictates of social change can be clearly seen in some specific economic doctrines. Thus, the status of the law of motion of Soviet society had been given to planning in the early 1930's: it determined social developments. It was natural to deepen this idea somewhat later: the proletarian dictatorship was taken as the law of motion, since it "determined the laws of development of the transition period" as Voznesenskij put it. This idea, generally accepted till the early 1940's, was a direct reflection of the disappearance of the economy into politics. Still, economic laws were taken to be objective, because they were — as Paškov wrote — "necessary for reaching a given goal set by the proletariat". Together these two conceptions mean that what was done by the state — Paškov's proletariat — was an objective economic law. Economic laws were found by studying the speeches and decisions of state leaders. By the mid-1930's Ostrovitjanov was demanding an end to theoretical discussion — or "Scholasticism" — and urged for systematization of concrete facts.[88]

The status of political economy was being changed from another direction, too. Reflecting Marx, it had earlier had the status of the Marxist fundamental discipline. Now new textbooks were codifying a conception of unified Marxism-Leninism with political economy as one of its parts, an application of dialectical and historical materialism — the new fundamentals — into the study of economy. This change — together with the eulogy of party-mindedness and Stalin — forms a clear-cut rupture between the earlier and 1934 editions of the textbook by Lapidus and Ostrovitjanov.[89]

2.6. *Laying the table*

The Soviet socio-economic situation was, in many respects, stabilizing in the mid-1930's. The centralized planned economy had basically come into being, and the

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87 Bl'jumin, I. (1931): *Sub"ektivnaja škola v političeskoj ekonomii, Tom I—II.* The second volume, dedicated to criticisms of "the mathematical school", surveys in some detail Cournot, Dmitriev, Gossen, Jevons, Walras, Cassel and Pareto. Bl'jumin thinks that the more developed a science is the better possibilities it gives for the application of mathematics (as is well known, Marx had similar kinds of ideas). Therefore, Bl'jumin foresaw a future Marxist mathematical economics! — The growth theorist Fel'dman was among those accused of "mathematical extrapolation" and forgetting of economic essences in the 1930's. See Pogrebinskaja, V. (1979): op.cit., 79.

88 Ostrovitjanov as cited in *Geschichte* ... (1972), op.cit., 114—115; Paškov, A. (1934): O političeskoj ekonomii v širokom smysle. Bol'ševik 12, reprinted in Paškov, A. (1973): *Voprosy ekonomičeskoj nauki*, 440—463.

89 Several Western sources claim that no economics textbooks were published in the USSR between the early 1930's and 1954. As shall be seen below, this is not quite true.

country was declared socialist in 1936. Now socialism was equated with the state ownership of the means of production and central planning. Reality was taking the place of utopias, and no other utopias were allowed.[90] A compromise with pre-revolutionary values was taking place in many fields.[91] Something similar happened in economics, too.

In early 1936 A. I. Paškov noted in *Pod Znamenem Marksizma* that different kinds of opinion could be observed concerning political economy in the wide sense. A false opinion claimed that PES could only be created in communism proper. But actually Soviet experience was enough for theoretical generalization, and with an impeccable party-minded logic Paškov concluded that this generalization had already been made. The party had naturally already done what it could do. Paškov thus announced that PES basically already existed. It was "the theory of Marx and Engels, Lenin and Stalin, the theory developed by the Party and Comintern". It was left for the economists to systematize and develop this theory by studying economic policy, that is economic laws in action.[92]

Paškov's article was an important step towards PES. There were at least three reasons for the birth of this concept. (1) It was to be an important part of Marxism-Leninism showing the correctness of state policy and progressiveness of socialism in comparison to capitalism. The birth of PES was part of an ideological effort to provide foundations for equating Soviet reality with the socialism of the utopies of Marxism. The conception of objective laws, analysed below, was to be the central idea here. (2) One must also remember that scientific ideals had always had an important role in Marxist thinking. A new Marxist society without a theory of itself certainly had to sound strange to all those presenting themselves as Marxist purists. (3) Economic knowledge was needed. Big questions naturally were too important for economists, but analysis and advice were needed on many problems not pre-empted by political leaders. Good articles were written,[93] but economists often had to meet with the strict but badly defined boundaries of legitimate enquiry. In the late 1930's discussing pricing could be forbidden,[94]

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90 Kemp-Welch, A. (1980): Stalinism and Intellectual Order. One implication of this was that giving too positive an account of the Utopian Socialists was regarded a grave anti-Marxist mistake. See Zavodnik, S. (1938): Antimarksistkie ošibki v "Istorii političeskoj ekonomii" D. Rozenberga. *Bol'ševik* 6, 88—98.

91 Dunham, V. (1976): *In Stalin's Time*; Fitzpatrick, S. (1976): Culture and Politics under Stalin: A Re-Appraisal. *SlRev* XXXV:2, 211—231.

92 Paškov, A. (1936): K voprosy političeskoj ekonomii v širokom smysle slova. *Pod znamenem marksizma* 1, 106—136. Also reprinted in Paškov, A. (1973): op.cit., 463—511.

93 Thus, for instance, Strazevskij and Turetskij were writing perfectly sensible articles on the problems of enterprises.

94 This is what Molotov is said to have done in 1938: prices according to him were a political, not an economic problem. See Arzumanjan, A. (1964): O razvitie ekonomičeskoj nauki i ekonomičeskogo obrazovanija v SSSR. *IAN* 9, 3—12.

developing balance methods could be declared counterrevolutionary[95] and an economic journal could be heavily scolded for not publishing all the pronouncements of Stalin.[96] The purges of 1936—1938 took a heavy toll, at least in Gosplan.[97]

As far as constructive analysis was wanted, an obvious dilemma arose. For several years already, it had been thought that economic laws were created by political decisions. A correct decision, the one corresponding to the economic laws, was thus the one made. But in this case, how could recommendations be made? A high-level sword was needed to cut this obviously dysfunctional knot.

The setting for this sword was created by a Central Committee 1936 decision on reforming economic education and writing a textbook of political economy. The new course of political economy to be taught in universities was to be in a better way argued and more unified than the existing course, which was now dubbed a course on the history of economic policy.[98] This decision was to lead to the publishing of a political economy textbook in 1954, eighteen years later.

The Central Committee decision had been preceeded by decisions on university education in general, and it was part of a wider policy effort towards social science and philosophy. The Central Committee decided rather specifically upon the contents of the course. It was to have a historical approach, using *Capital*, Lenin's *The Development of Capitalism in Russia*, *Imperialism* and *State and Revolution* as well as Stalin's *Problems of Leninism* as basic literature. The course was to be fact-

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95 The case involving Strumilin had its humorous aspects. He published three variants of one article in different journals — each with a different solution to the same theoretical problem. "Admiration was part of the sensation created by this incident", tells J. Miller, then in Moscow (see Miller, J. 1964): op.cit., 121). This time, however, the underground activist of pre-revolutionary times had stretched his cunning too far. I. Laptev was nettled at Strumilin's foxiness, but even moreso at his having placed the party in his national economic balance — among "unproductive services". See Laptev, I. (1937a): "Balans" grubejšikh ošibok. *Bol'ševik* 7, 89—96. A year later Notkin and Cagolov, Strumilin's competitors in developing the balance method, accused him of a counterrevolutionary attempt to revive the Bukharinist approach of "moving equilibrium". Laptev also strengthened his criticisms (see note 96, below). Finally Strumilin's publishers made a self-criticism, but Strumilin was seemingly damaged no more, in spite of his Menshevik past. See Katz, A. (1972): *The Politics of Reform in the Soviet Union*, 25—26; Zauberman, A. (1967): *Aspects of Planometrics*, 1; Boss, H. (1981): *Productive Labour, Unproductive Labour, and the Boundary of the Economic Domain, 1662—1980: History, Analysis, Applications.*

96 Laptev, I. (1937b): Žurnal, stradajuščij političeskoj bespečnost'ju. *Bol'ševik* 13, 87—91. *Problemy ekonomiki* was accused of (in this order) 1. being detached from politics (not always publishing all the comments of Stalin, not criticizing counterrevolutionaries forcibly enough etc.), 2. publishing counterrevolutionary articles (that of Strumilin) and 3. being on a low theoretical level. Only the last criticism is mentioned in Širokorad, L. (1977): op.cit., 138.

97 Zaleski, E. (1980): op.cit., 167—172.

98 The resolution on political economy is not in *KPSS v resoljucijakh i rešenijakh s"ezdov, konferencii i plenumov CK. Tom 5, 1931—1941*, but it is widely commented upon in Borilin, B. (1937): O predmete političeskoj ekonomii i ee prepodavanii. *Bol'ševik* 1, 22—36; Tal', B. (1936): O predmete političeskoj ekonomii i ee prepodavanii. *Bol'ševik* 22, 33—41.

oriented, avoiding schematism, abstractness and any approach separate from class-struggle. It was also supposed to criticize bourgeois, bourgeois-fascist and opportunistic theories. But B. Tal', head of the press department of the Central Committee, stressed in an article clarifying the decision that there would be no reason to revive any old discussions that were of interest only to some former employees of *Institut Krasnoj Professury*. The new political economy, he was saying in effect, should bypass all the open-ended discussions of the Soviet economists in 1917—1931. It was to be something totally new.

The Central Committee decision wanted the economists to reach a common opinion on the contents of the course. This was probably not easy, which may have been one reason for the fact that work on the textbook project did not start until 1938. A collective from the Academy of Sciences Institute of Economics worked "under the immediate guidance of the Central Committee of the Party"[99] on a book in two volumes, the first one being about the presocialist modes of production and the second about the communist mode of production. After a draft had been finished in early 1941, a discussion on it was held in the Central Committee. What the economists were then told, was to reshape the whole future of Soviet economics.[100]

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[99] *Geschichte* ... (1972): op.cit., 32. According to this source, the collective included, at least, Atlas, Deborin, Paškov and Strumilin, who had just been branded counterrevolutionary in *Bol'ševik* (note 96, above). Borilin, who had a ready sketch in his 1937 article for the structure of the book, is not included in this list. He died in 1939. The second edition of this book (*Istorija* ... (1983), op.cit., 283 etc.) gives 1937 as the year of starting the work on the textbook and 1938 as the original deadline for finishing it.

[100] Neglecting the history of the 1954 textbook (as in Katz, A. (1972): op.cit.) makes the development of Soviet political economy incomprehensible.

3. FOUNDING A POLITICAL ECONOMY

3.1. *The basic problems of Stalinist PES*

Till 1941 Soviet economists generally thought that the proletarian state created any economic laws that might exist in socialism. Then the textbook writers of the Academy of Sciences were told that objective laws — or at least one such law — existed in Soviet society. As the laws were objective — that is, existed independently of the consciousness of men — the state could not create them. They had to be found and complied to.[1]

In teaching the economists, J. V. Stalin[2] took the law of value as his example. Contrary to what the draft textbook had maintained, he asserted that prices and money, for example, reflected this law, thus starting an immense literature. As for Marx, the law of value is a compressed expression of the sociality of capitalist working society as mediated through markets, almost a synonym for capitalism, Stalin's decision to invoke this very law was a most unfortunate one. Saying, as Stalin did, that this law functioned differently in different societies, did not clarify matters much.

The possibility of the law of value existing in the Soviet Union had been discussed in the 1930's, but Stalin's emphasis on the objectivity of economic laws totally

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[1] Paškov, A. (1970): *Ekonomičeskie problemy socializma*, 94. Spulber's idea of a direct connection between "the heavy tolls of war" and recognizing objective economic laws is thus false. Spulber, N. (1979): *Organizational Alternatives in Soviet-Type Economies*, 32. Below, both "zakon" (law) and "zakonomernost'" (lawlikeness) are translated as "law" though their uses in Russian may sometimes slightly differ. Following Lenin, Soviet philosophy typically defines law as a deep, essential, enduring, recurrent connection or dependence between phenomena. See Lenin, V. (1908—1915): Filosofskie tetrady. *PSS* 29:135—138.

[2] That Stalin was the one teaching the economists was told in O nedostatkakh i zadačakh naučno-issledovatel'skoj raboty v ekonomike (1949). *VE* 8, 66.

upset the economists' schemes. The new doctrine was publicly announced in an unsigned article in *Pod Znamenem Marksizma* in 1943,[3] in the midst of the war.

Talking of objective laws might mean setting a potential criterion for policies, giving economics more importance or even widening the use of prices and money as immanent to socialism. The article of 1943 had a different approach, though. It stressed that denying the existence of objective laws leads to a rule of arbitrariness and chaos. In fact, socialism does not develop randomly, but as a law-bound process. Read closely, the article seems to be differentiating between three categories of economic laws. First, there are various technical restrictions or identities. Second, some matters are laws because they follow from the concept of socialism: the planned character of socialism (planomernost') is a law as socialism without planning is a conceptual contradiction. Third, policies proved correct by history — collectivization is the example used — are economic laws.

Obviously, the second and third categories of laws cannot be scientifically disputed, given the Stalinist society. One could only try to invent new laws or to interpret old laws in a new way. As the former possibility was reserved for high authority, the economists could only engage in the latter. Accounts of scholarly disagreements disappeared from economics textbooks.[4]

The *Pod Znamenem Marksizma* article had difficulty in trying to characterize the objectivity of economic laws. Planomernost', not the plan itself, was an economic law.[5] But, on the other hand, it was asserted that laws are always cognized and

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[3] As the original article has not been available, two translations have been used. One is in *AER* XXVIV (1944):2 and the other in *Beiträge zur Geschichte der politischen Ökonomie des Sozialismus* (1975), 263—294. The former translation seems inexact and the latter partial. The fact that the article was not signed has caused speculation. This, however, seems to have been the usual practice in editorial material. The editor of *Pod Znamenem Marksizma* at the time was the economist L. A. Leont'ev, who naturally may have been assisted in writing the editorial.

[4] The 1931 edition of the Ostrovitjanov and Lapidus textbook gave a factual account of various disagreements, while in the 1934 edition, they were already making heavy accusations against Bukharin and Rykov. In 1936, as noted above, remembering old debates was no longer regarded proper. The 1941 textbook of Leont'ev (Leont'ev, A. (1941): *Predmet i metod političeskoj ekonomii*) presents political economy as a monolith. This book has nothing to say about economic laws of socialism, while its 1945 version incorporates the 1943 Pod Znamenem Marksizma article (Leont'ev, A. (1945): *Predmet i metod političeskoj ekonomii*, 35—53).

[5] The differentiation between an "objective necessity" and a "law" was not always adhered to. In his 1945 book (see previous note) Leont'ev calls the planned management of the economy an economic law and two years later Ostrovitjanov calls the state economic plan an economic law. See Ostrovitjanov, K. (1947): Rol' sovetskogo gosudarstva v razvitii socialističeskoj ekonomiki. Bol'ševik 21, reprinted in Ostrovitjanov, K. (1972—73): *Izbrannye proizvedenie, Tom 1*, 69.

implemented in practice — if frictions in management are not too large[6] — so the old idea equating state activities and economic laws was not really abandoned.

Maintaining that the state, the law of value and the special role of gold would survive in future socialism was condemned in 1931 as a programme of capitalist restoration.[7] Just ten years later it had become orthodoxy. Meantime, however, the meaning of these terms had changed or at least become unfathomable. Thus, the law of value was not necessarily connected with markets at all. In the 1940's it was usually connected with the necessity of monetary book-keeping for implementing distribution according to work done.[8] Contrary to Marx, it did not imply any contradiction between value and use value (excess demand in all markets was often seen as immanent to socialism),[9] nor did it regulate the allocation of means of production nor imply profitability in production.[10]

For a reader acquainted with Marxism and economics, Soviet economics of the 1940's is an intriguing experience. Like in a dream, concepts and laws float by, wraped in mysterious garb, badly defined and always debated by lesser interpreters. Fundamentally, but not only, Stalinist PES was an ideology or state doctrine presenting reality as real socialism — that is, a law-bound product of history. But that does not make it unimportant, as is sometimes thought.[11] PES was an integral part of Soviet culture. Indeed, it still is. Even if Ostrovitjanov, whom Stalin made the curator of Soviet economics,[12] produced no theories of his own, interesting features did appear.

Ostrovitjanov delivered his basic message on PES in 1944,[13] emphasising how the laws of PES should be presented in four phases. First, one should point out how the laws follow from the definition of socialism as primarily meaning public ownership. Second, one should stress their objective character. Third, one should show how the party and state cognize and use them. And finally the laws should

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6 See, e.g., Nosov, V. (1941): Plan v socialističeskom khozjajstve. *Pod znamenem marksizma* 4, 10—26.

7 See *Protiv kondrativščiny* (1931), 9—10, 90.

8 See Ostrovitjanov, K. (1947): op.cit.; Leont'ev, L. (1945): op.cit.; Voznesenskij, N. (1948): *Voennaja ekonomika SSSR v period otečestvennoj voiny*. The explanation was only changed in the early 1950's.

9 See, e.g., Notkin, A. (1948): *Očerki teorii socialističeskogo vosproizvodstva*, 30.

10 The law of value was taken to imply that the value of total production is the same whether calculated in price or in value terms but that this is not necessarily true in each branch of production.

11 See Treml, V. (1969): The Interaction Between Economic Thought and Economic Policy in the USSR. *History of Political Economy* I:1, 187—216.

12 The term is Katsenelinboigen's. See Katsenelinboigen, A. (1980): *Soviet Economic Thought and Political Power in the USSR*, 18.

13 See Ostrovitjanow, K. (1944): Ueber die Mängel im Unterricht der politischen Ökonomie in der Hochschulen. In *Beiträge* ... (1975), op.cit., 295—313.

be corroborated by "facts and figures". A historical approach should be used instead of overly scholastic studies of *Capital.*[14] Marxism was about history, not about theory.

Marx proceeded from a criticism of existing theories and from facts. PES was to proceed from features now defined as socialism: state ownership, planning and the role of the state. Ostrovitjanov's PES was "axiomatic-apologetic" as it showed how the definition of socialism had come true. Some twenty years later arose another axiomatic approach: SOFE. But it was to be "axiomatic-normative" since for SOFE the optimal regime was still to be construed, even though from seeds already in existence.

And indeed the theory of PES was presented historically. A series of articles by I. Gladkov and G. Kozlov in *Voprosy ekonomiki* presented PES as a chronological chain of remarks by the Party and Stalin. Here, as well as elsewhere, empirical data was only used to supplement theory. General theories were "proved" or "demolished" by raw statistics of utterly dubious quality.[15] Real historical processes were sometimes reflected in theory in a curious way. The Stalinist state-building process had been an attack by the state against the society. All communists, as G. M. Malenkov told in 1941, were "servants of the state".[16] In social theory the central contradiction in the USSR was located as that between "the old and the new". And often the old was set equivalent to the society and the new to the state.[17]

This new doctrine was by no means easy to pursue. Whatever Gladkov and Kozlov wrote, Stalin's remarks never added up to a theory. At the same time,

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[14] The same antitheoretical approach was typical of the discussion on statistics in 1948—52 on the pages of *Voprosy ekonomiki* and *Voprosy statistiki.* Its background was in the idea of the 1930's of the dying away of statistics — the study of random processes — in socialism, a society in which the *stikhija* (anarchy) had been substituted by planning. This idea, originally widely accepted, was now criticized and finally abandoned. During the discussion, the Moscow statistics professor A. Ja. Bojarskij — a future critic of SOFE — and V. S. Nemčinov — the future founder of CEMI — were both condemned as formalists within statistical science as they had not understood that the proper model of Marxist-Leninist statistics was to be found in the works of Lenin, Stalin and even Molotov. No other tools than those used by these classics of statistics were needed. It was also argued that statistics could have no independent role in cognition: it was restricted to illuminating the laws somehow found by political economy.

[15] This neglect of mediation (Vermittlung) should be seen as a general feature of the Stalinist philosophy. See Donoso, A. (1979): Stalinism in Marxist Philosophy. *Studies in Soviet Thought* XII:2, 113—131.

[16] Malenkov, G. (1941): *O zadačakh partijnykh organizacii v oblasti promyšlennosti i transporta,* 40.

[17] See, e.g., Leont'ev, A. (1941): op.cit.; Rozental', M. (1951): *Marksistkij dialektičeskij metod,* 86—87. A recent monograph still argues that the immanent contradictions of socialism are given too little attention to because they are seen as imperfections, not dialectically as the mainspring of all development. *Metod političeskoj ekonomii socializma* (1980), 85—103.

calls for a useful economic science were frequent.[18] It is no wonder, then, that writing PES took more and more time. As early as 1944, it was announced that Ostrovitjanov and others had finished a book on the theory of the Soviet economy. It was announced again next year, but never came out.[19]

3.2. *Against Cosmopolitanism and other mistakes*

The *ždanovščina* — the fight against foreign influences in Soviet culture — of the late 1940's also influenced economics,[20] although the major clash, that against Evgenij Varga and his institute, was of earlier origin. Varga, the Hungarian revolutionary and sometime adviser of Stalin,[21] had published a monograph on post-war changes in capitalist economics.[22] It was accused, among other things, of giving too positive a picture of the prospects of capitalism and of separating economics and politics. Soon a full-scale attack was launched against Varga's Institute of World Politics and Economy. In September 1947 this institute was fused to Ostrovitjanov's Institute of Economics. Ostrovitjanov also edited its new journal, *Voprosy ekonomiki.* Finally, Varga renounced his views, he later explained, to avoid being a weapon of alien propaganda.[23]

The Varga affair was one of the reasons for reorganizing economic research and for subordinating the Institute of Economics to the "scientific-organizational guidance" of Gosplan. Earlier work was also blamed for insufficient theoretical analysis, lacking concreteness and for general propagandistic inclination. Even quantitative research plans had been grossly underfulfilled.[24] The Gosplan head N. A. Voznesenskij needed the economists' work for fulfilling his long-time dream: a perspective general plan of the Soviet economy.[25]

In spite of Ostrovitjanov's exhortations,[26] the anti-cosmopolitanist campaign

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18 Dunmore, T. (1980): *The Stalinist Economic System*, 57.

19 Grečko, I. (1945): Institut ekonomiki Akademii Nauk SSSR v 1944g. *IAN* 3, 42—43.

20 The basic accounts are Conquest, R. (1961): *Power and Policy in the USSR*; Hahn, W. (1982): *Postwar Soviet Politics*. Counts, G.—Lodge, N. (1949): *Country of the Blind* contains numerous translated documents.

21 On Varga see Day, R. (1981): *The 'Crisis' and the 'Crash'*; Rosenfeldt, N. (1978): *Knowledge and Power*, 152. On the Varga-debate see Kerner, M. (1981): *Staat, Krieg und Krise.*

22 Varga, E. (1946): *Izmenenija v ekonomike kapitalizma v itogi vtoroj mirovoj voiny.*

23 Varga, E. (1968): *Politico-Economic Problems of Capitalism*, 50.

24 This can be seen in the yearly reviews in *IAN*, which often cited outside criticisms.

25 Kolotov, V. (1976): *Nikolai Alekseevič Voznesenskij*, 314.

26 Ostrovitjanov, K. (1948): Ob itogakh i napravlenii raboty Instituta Ekonomiki Akademii Nauk SSSR. *VE* 1, 91. (The translation in Conquest's book is incomplete.) Probably the wildest thing in the anticosmopolitan campaign in economics was a March 1949 talk by I. A. Gladkov, only published much later in Medvedev's *samizdat* Diary. See *Političeskij dvednik 1964—1970* (1972), 224—235.

against "nonpolitical", "technical", "objectivist" economics never really got wind under its wings. In fact, outside Varga's institute economists had been publishing almost nothing, and objects of abuse were soon numbered. But a positive example for economists was found in Voznesenskij's 1947 book on the Soviet war economy. In *Bol'ševik*, L. M. Gatovskij extolled its party-mindnedness, patriotism and other scientific virtues.[27] The book was given the Stalin prize. But in early 1949 this new "theoretical favourite" of the party was fired and later executed. In 1952, after Stalin had published his *magnum opus* in political economy, Voznesenskij's book was heavily criticized. Why?

Voznesenskij was later accused of having denied the objectivity of economic laws, and he did regard planning as an economic law. But so did Ostrovitjanov at that time. In fact, Voznesenskij was neither a voluntarist nor a market socialist.[28] In writing that the law of value influences allocation of resources, he used the term in the usual 1940's sense of economically based bookkeeping, not as a reference to markets.[29]

Actually, Voznesenskij's stand seems to have been a generalization of the frequent calls for useful economics. Rational planning "till the last bolt"[30] was to be the domain of not only decision makers, but also economists:

> In distinction from the political economy of capitalism, which is about anarchistic (stikhinykh) laws of motion, the political economy of socialism — also containing the phase of war economy — studies the laws of planning and organizing production. Thus socialist planning, being based on the reasoned use and application of the economic laws of production and distribution, is itself a social law of development and, as such, an object of political economy.[31]

This is what proved too much for Stalin. For him, planning was a matter of policy, not of economics.[32]

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27 Gatovskij, L. (1948): Kniga o voennoj ekonomike SSSR. *Bol'ševik* 1, 71—88. As a contemporary commentary see Zauberman, A. (1949—50): Economic Thought in the Soviet Union. *Review of Economic Studies* XIX:3, 191—199.

28 Meek, R. (1953—54): Stalin as an Economist. *Review of Economic Studies* XXIII:3, 232—239. For the latter interpretation see Conquest, R. (1961): op.cit.; Judy, R. (1971): The Economists.

29 Voznesenskij, N. (1948): op.cit., 145—146. On the different meanings of the "law of value" in Soviet political economy see Sutela, P. (1973): The Law of Value and Socialism (in Finnish). *Sosiologia* X:5, 215—224.

30 See Katsenelinboigen, A. (1978): *Essays in Soviet Economic Planning*, 211.

31 Voznesenskij, N. (1948): op.cit., 151.

32 Voznesenskij had been careful enough to acquire Stalin's prior acceptance of the book (Kolotov, V. (1976): op.cit., 316—318), but this did not save him from later denunciation. Perhaps even on the contrary: it was prestigeously claimed during the de-Stalinization campaigns that Stalin himself had inserted into Voznesenskij's manuscript the very words about the planning socialist state being the mainspring of Soviet economic development that were later used as the archexample of Voznesenskij's voluntarism. For this story see Il'ičev, L. (1963): *Obščestvennye nauki i kommunizm*, 63—64. — After finishing the war economy

Voznesenskij made two mistakes. He was widening the realm of the economy and also reviving the efficiency-minded Neoclassical approach to socialist economics. In these mistakes, he was not alone. Not all economists had been only drafting the fundamentals of PES. In the late 1940's V. V. Novožilov, Strumilin and others put forward proposals for determining investment efficiency within a given plan.[33] They met with heavy criticism. Basically their opponents did not admit the existence of a general problem of scarcity. Thus Mstislavskij — an extreme critic — scolded Novožilov for advancing from "the thinking — already long ago exposed in Marxist literature — of 'maximum results with minimum costs' ".[34] In socialism, according to Mstislavskij, investments were decided upon by political criteria. Instead of formulas, a specific analysis of long-term advantages was needed.[35]

The discussion on efficiency calculation did have some practical positive effects.[36] As Khačaturov summed up the debate, he did reserve a niche for economists, too.[37] Even then, in no country or time has the barrier between economists and economic policies probably reached such heights as it did in the Soviet Union of the late 1940's. But certainly, if arbitrariness ever had functionality, it cannot

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book, Voznesenskij started writing a book on "the political economy of communism". The contents and subsequent fate of this manuscript, which Voznesenskij finished, are not known. Rosenfeldt (op.cit., 152) believes that Voznesenskij was assigned the task of writing the book. This does sound improbable, since an Academy of Sciences group of economists was given the task of writing the official textbook of political economy in 1947 and the idea of competing projects sound quite impossible.

33 The central articles are translated in *International Economic Papers*, No:s 1 and 6. As Soviet commentaries see Grebennikov, P. (1981): Teorija sravnitel'noj effektivnosti khozjajstvennykh rešenii — važnoe dostiženie sovetskoj ekonomičeskoj mysli and — for earlier discussions — Dovbnenko, N. (1983): *Problema ekonomičeskoj effektivnosti socialističeskogo proizvodstva v literature 20—30kh godov*. For Western reviews see Grossman, G. (1953): Scarce Capital and Soviet Doctrine. *Quarterly Review of Economics* LXVII:3, 311—343; Wiles, P. (1953): Scarcity, Marxism and Gosplan. *Oxford Economic Papers* V:3, 288—316; Zauberman, A. (1950): The Prospects of Soviet Investigations into Capital Efficiency. *SovStu* I:3, 328—333. Novožilov's basic writings on efficiency are collected in Novožilov, V. (1970): *Voprosy razvitija socialističeskoj ekonomiki*. There is a biographical sketch by Nikolai Petrakov in Novožilov, V. (1972): *Problemy izmerenija zatrat i rezul'tatov pri optimal'nom planirovanii*, 5—18.

34 Mstislavskij, P. (1948a): O trudakh Leningradskogo finanso-ekonomičeskogo instituta. *VE* 7 7, 131—135. Another future theoretician of optimal planning, Lur'e was criticized on similar grounds in Krylov, P. (1949): Protiv buržuaznoj metodologii v voprosakh ekonomiki transporta. *PKh* 4, 85—91.

35 Mstislavskij, P. (1948b): O metodologičeskikh ošibkakh v literature po ekonomike promyšlennosti i transporta. *VE* 10, 34—48; Mstislavskij, P. (1949): Nekotorye voprosy effektivnosti kapitalovloženii v Sovetskoj ekonomike. *VE* 6, 96—115.

36 Dunmore, T. (1980): op.cit.

37 Khačaturov, T. (1950): Metody ekonomičeskogo srvanenija variantov kapitalovloženii. *IAN* 4, 243—244.

maintain its compatibility with managing a complex society for ever. Therefore, a change in the position of economics was to be expected.

If Soviet economics was far from Soviet politics, it was also far from foreign economics. Even forgetting classical political economy, it could be announced that all "economic science" had been created by Marx, Engels, Lenin and Stalin and that "bourgeois economic 'science' has already long ago deteriorated into a shameless apology of capitalist monopolies, into a weapon of imperialist expansion and aggression".[38] Some, like P. P. Maslov, tried to acquaint their colleagues with Western advances in econometrics and statistics. But Maslov's book was withdrawn after printing for characterizing Marx's method as deductive, for neglecting the achievements of Soviet statistics and for praising foreign cost of living indices, which were really used to cover up the impoverishment of workers.[39]

Academician Nemčinov, Maslov's supporter, was for his part condemned for a proposal of importing econometrics, "that is the archbourgeois mathematical school of statistics ... to Soviet earth".[40] Hence Nemčinov was later anxious about showing the roots of input-output analysis in the Soviet 1920's, Dmitriev, Marx and the physiocrats.

Meanwhile, the future foundation stones of Soviet mathematical economics, Kantorovič and Novožilov, had reached their basic results back in the 1930's or early 1940's. Novožilov was in the centre of the investment criteria debates, while Kantorovič worked with great success — even getting the Stalin prize in 1949 — in mathematics. Among economists, only Novožilov had ever quoted him.[41]

3.3. *The coming of PES*

V. G. Solodovnikov — in a memorial essay about K. V. Ostrovitjanov in 1976 — recalled the Institute of Economics of the late 1940's as a beehive of scientific debates.[42] Contemporary literature gives a different impression. Political economy was the object of continuous criticism both for its mistakes and for its uselessness. The disjunction between economics and politics, pseudoscholarliness, insufficient criticism and self-criticism as well as the birth of scientific monopolies were among

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38 Za tvorčeskoe razvitie ekonomičeskoj nauki (1950). *VE* 7, 3—15.

39 Zauberman, A. (1950): op.cit., 112—113; Ostrovitjanov, K. (1948): op.cit., 87.

40 Ostrovitjanov, K. (1948): op.cit., 87. Nemčinov committed many sins *circa* 1948. He was participating in the statistics discussion, and supported both Varga and Maslov while opposing T. D. Lysenko. The last mentioned activity quickly led to his job being changed from the Timirjazev Agricultural Academy to the Council for the Study of Productive Forces at Gosplan. See Vainštein, A. (1965): Večer pamjati akademika V. S. Nemčinova. *EMM* I:4, 617—621.

41 On Kantorovič's career see Smolinski, L. (1977): L. V. Kantorovich and Optimal Planning.

42 *Stanovlenie i razvitie ekonomičeskoj nauki v SSSR* (1976), 95.

the reasons offered for this state of affairs.[43] Of the dissertations submitted in 1946—47, only two were regarded publishable, while the rest "contained little that was timely".[44] Political economy was fulfilling none of its tasks.

Economic discussions were not always connected with political infights, as sometimes interpreted.[45] Discussions also then had their inner dynamics, and permanent calls for a useful economic science had to have some effect. In 1950 the boundaries of scholarly discussion seemed to be generally widening, as Stalin condemned artificial monopolies in science.[46] In economics the long path to a textbook of political economy was at the same time winding towards its end.

The project, disrupted in 1941, was resumed in 1948 when a new group lead by Ostrovitjanov (with D. T. Šepilov, L. A. Leont'ev, I. D. Laptev, I. I. Kuzminov, L. M. Gatovskij, P. F. Judin, A. I. Paškov and V. I. Pereslegin as members) promised to finish its work by 1949—1950.[47] The book finally came out in 1954, eighteen years after it had been started.

The group of authors, largely from the Institute of Economics, had finished a draft by November 1951 when a seminar attended by 624 economists was held in the Party Central Committee.[48] Having once again deplored the state of economics in his opening speech, Ostrovitjanov declared that the main task of the textbook would be to take stock of the generally accepted doctrines. Avoiding debatable positions had therefore been the main difficulty met with by the writers. Another topic that Ostrovitjanov addressed was the disjunction between economics and practice. In his view this was because of the unavailability of empirical data from "ministries, committees and institutions". This could be remedied by drawing up a list of statistics needed every year and submitting it to the authorities concerned.[49]

One of J. V. Stalin's ambitions was to establish himself as the worthy follower of Marx, Engels and Lenin in theory as well as in practice. The economics *magnum opus* of Stalin, *Economic Problems of Socialism in the Soviet Union*, was to settle

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43 These examples are from O nedostatkakh i zadačakh naučno-issledovatel'skoj raboty Instituta ekonomiki (1948). *VE* 8, 66—110.

44 *PKh* 1948:5, 88.

45 Ploss, S. (1965): *Conflict and Decision-Making in Soviet Russia.*

46 This has even been called the end of Stalinism in Soviet science. See Bochenski, J. (1966): Marxism in Communist Countries.

47 Zauberman, A. (1950): op.cit., 102 note.

48 See *Stanovlenie* ... (1976), op.cit.

49 The mere fact of making such a proposal tells much about the position of research. — Ostrovitjanov was elected as a member of the Party Central Committee and vice-president of the Academy of Sciences in 1952.

all the disagreements on the path of the political economy textbook.[50] Only he could finally decide upon economic science.

Stalin's booklet consisted of four writings. The longest of them was adressed to the November 1951 seminar participants. As usual when intervening in scholarly disputes, also here Stalin sided with the majority;[51] he was basically satisfied with the draft. On one important point, however, he changed the doctrine of PES. While the draft had explained the law of value by monetary bookkeeping (above, p. 65), Stalin and the final textbook used the explanation of two forms of ownership.[52] This connected the law of value with markets and implied that it does not exist within the state sector.

The other three writings were replies to comments on Stalin.[53] One of them is an answer given to L. D. Jarošenko,[54] who had offered to write a "Political Economy of Socialism" and complained that the Politbureau had left his opinions without due notice. Jarošenko's basic idea was that the forces and relations of production had fused in socialism. Therefore PES was to become a theory of planning and of organizing productive forces. To Stalin, Jarošenko was following Bukharin and Bogdanov. Economic policy, he wrote, was a matter for the leading organs, not for economists.

Jarošenko was not a pseudonym for Voznesenskij, as Katz has thought,[55] but a real person. But his ideas did have much in common with those of Voznesenskij, as well as with those — largely unpublished at the time — of the future optimal planners Kantorovič, Novožilov and Lur'e. SOFE was to be about "the rational organization of forces of production, about national economic planning", as Stalin characterized Jarošenko's proposal. The Neoclassical approach, so severely condemned at the time of the Stalinist revolution, had thus lived. Within fifteen years it would have enough force to openly challenge PES.

Stalin's booklet had a predictable reception. With Marxism-Leninism as the only science in the world and with Stalin as its peak, "Soviet economics (was —

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50 But certainly the booklet was not intended as the textbook, as Susiluoto writes in an obvious slip of the pen. Susiluoto, I. (1982): *The Origins and Development of Systems Thinking in the Soviet Union*, 154.

51 This is pointed out by Enteen. Enteen, G. (1978): *The Soviet Scholar-Bureaucrat.*

52 See Ostrovitjanov, K. (1951): Voprosy političeskoj ekonomii. Vystuplenie na soveščanii ekonomistov, sozvannom CK KPSS v nojabre-dekabre 1951g. In Ostrovitjanov, K. (1972—73): op.cit., 122; Stalin, J. (1952): *Ekonomičeskie problemy socializma v SSSR.* The two forms of ownership explanation had been already proposed in the 1940's, though it was not prevalent then. See Ostrovitjanov, K. (1946): K voprose o tovare v sovetskom khozjajstve. *PKh* 6, 53—65.

53 An exception is the comments on Notkin, based upon his paper asked for by the Central Committee. See Katsenelinboigen, A. (1980): op.cit., 15.

54 Compare *Khrushchev Remembers* (1971), 271—275 for the personality of Jarošenko.

55 Katz, A. (1972): op.cit., 38—39. Hahn, on the other hand, seems to see no essential difference between the views of Stalin and Jarošenko. Hahn, W. (1982): op.cit., 151.

P.S.) the most advanced science in the world".[56] More seriously, three advances were seen in the booklet: affirming the existence of economic laws, affirming the existence of money and markets in socialism and affirming the possibility of a contradiction between forces and relations of production even in socialism.[57] In fact, none of these ideas was new, Stalin's formulations were often utterly unclear, some of his ideas were merely harmful and the situation, political economy depending upon the dictates of an old dictator, was absurd.

The propaganda for Stalin's ideas was strengthened, when Mikhail Suslov published an article in *Pravda* accusing economists and their journal of insufficient criticisms of Voznesenskij's views. *Voprosy ekonomiki* confessed immediately. Ostrovitjanov, the main editor, assumed the main responsibility, but many others were also given their due.[58] Voznesenskij's basic fault was his denial of the objectivity of economic laws.

Why were objective economic laws so important to Stalin and Suslov? Certainly not because it is difficult to imagine a materialist theory without admitting the independent existence of the outer world. And not because objective laws might be used as a yardstick of policies (though this may be the reason for Oskar Lange's eulogies of Stalin). Objective laws could also serve as a vehicle of apology. If laws are always implemented — as Stalinist PES claimed — the coming of Soviet socialism was a law-bound process. What existed was not a whim of policy makers, but the proper model for the whole world.[59]

Which variant of the idea of objective laws was to be used — potentially critical or apologetic — clearly depended on the accepted ways of finding and proving these laws. It is no wonder then that this was to be a central topic both in Soviet PES and in later discussions around SOFE. But under Stalin, naturally, the leader himself had to tell which laws existed. Who else knew which policies were correct?

Even if Soviet economics had become the most advanced science in the world, the same could not be said of what Soviet economists had been doing. The verdict made by *Voprosy ekonomiki* effectively summed up earlier criticisms:

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56 Velikij vklad v sokravinščicu marksizma-leninizma (1952). *VE* 10, 20.

57 Among foreign eulogies see, especially, Lange, O. (1954): The Economic Laws of Socialism in the Light of Joseph Stalin's Last Work. *International Economic Papers* 4, 145—180 and Meek, R. (1953—54): op.cit. Lange's paper is interesting in that it praises Stalin's views on the objectivity of economic laws and fails even to mention his idea of the barrier between economic science and policy. For a modern commentary, which however clearly seems to exaggerate Stalin's originality, see Kerner, M. (1981): op.cit., 269—278.

58 Za polnoe preodolenie ossičok i koronnoe ulutščenie raboty sovetskikh ekonomistov (1953). *VE* 1, 31—13.

59 This role of the objectivity of economic laws was already understood in the 1950's by critical East European economists. See the articles by Nagy, Erdös and Lipinski in Spulber, N. (1979): op.cit. Also Marcuse, H. (1958): *Soviet Marxism. A Critical Analysis.*

> The insufficient knowledge of Marxism-Leninism is revealed in the substitution of factual description of economic policy for political economy, in inability and failure to collect historical experience and to comprehensively proceed to the essence of economic appearances, in theoretical helplessness and scholasticism, in disjunction from practice, in a dogmatic approach to solving practical problems, in engaging in repeating ready formulas and standpoints instead of scientific work, in orienting work by citations, in the simplifications and vulgarizations of Marxism not yet totally abolished and in the existence of cramming and talmudism.[60]

The textbook of 1954 was official both by origin and by monopoly position. Eight million Russian copies were printed in its various editions, and translations were numerous. Only in the 1960's were parallel textbooks with somewhat differing contents published. Even later, the call for a standard textbook giving an "official" truth has been recurrent (later, p. 137).

As decreed in the 1930's, the textbook[61] was structured historically. While most of the text was an historical description, the book did enumerate several economic laws of socialism. Among them were the basic economic law (to be analyzed below), the law of planned development, the law of value and others. Interestingly, the textbook no longer regarded the cognition of these laws as automatic as had earlier been typically done.[62] It explicitly stated that the laws just "give the *possibility* of developing and furthening the socialist economy, ..., for this possibility to come true, these objective laws have to be applied with complete expertise" (p. 415). Otherwise, the economy suffers.

As pointed out above, the laws of PES were originally not meant to be "only meaningful as statements of goals".[63] The automatism of cognizing them meant that the laws are also implemented in socialist development. This idea is also present in the textbook, and it is argued by classical circular reasoning: without implementing the laws "the planned management of communist construction would be impossible" (p. 415). This is a conservative variant of pragmatism: as long as the economy functions (well), it has developed in a law-bound way. As far as some laws are mere historical generalizations (above, p. 64), the conservatism is even more obvious: departure from what had existed before means departing from laws.

But what is new in the textbook is a different interpretation of the status of laws that is contradictory to the earlier one. Laws only give a possibility of

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60 Za polnoe... (1953), op.cit.

61 Below, page-references are to the 2nd edition of the textbook: *Političeskaja ekonomija, učebnik* (1955).

62 Rozental', M. (1951): op.cit. uses collectivization as example: collectivization is an objective economic law, but the victory of the correct line within the party was its prerequisite.

63 See, e.g., Dyker, D. (1983): *The Process of Investment in the Soviet Union*, citing Berliner on p. 100.

developing the economy, and they also function when not cognized. This point of view, actually a necessary part of the materialist theory of knowledge denying any necessary identity between the outer world, knowledge and action, implies the possibility of using economic laws as a yardstick of policies. Thus the possible contradictions in interpreting the economic laws of socialism — pointed out above — are very explicit in the official textbook of 1954.

3.4. *The winds of change*

Only after the death of Stalin could the continuous criticism of political economy have any practical effects. Both the Academy and the political leaders were repeatedly demanding more relevance of economics as well as other disciplines.[64] V. D. D'jačenko, the director of the Institute of Economics, reflected this criticism in a well-known speech in 1955.[65] Several speakers at the 1956 Party Congress were quite outspoken in regard to economic science.

The established leaders of the discipline had little advice to offer about what should be done. Paškov called for administrative changes, while Ostrovitjanov once again blamed institutions for hiding information.[66] A statistical yearbook was soon published, and work on coordinating research in different institutes was started. Scientific autarchy was also slowly crumbling. The number of foreign visitors at the Institute was 30 in 1956 and 80 in 1957.[67] The first mentions of international symposia were appearing in *Voprosy ekonomiki.*

As late as 1956, G. Sorokin, a leading Gosplan economist, repeated Kuibyšev's words about a statistical-arithmetic deviation in planning.[68] It was obviously becoming topical again. And the 1957 yearly report of the Institute of Economics did note that too little was done in this direction. The usefulness of input-output

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64 There is an important Central Committee resolution from the spring of 1954. Nauka i žizn (1954). *Kommunist* 5, 3—13.

65 D'jačenko, V. (1955): O zadačakh naučno-issledovatel'skoj raboty v oblasti ekonomiki. *VE* 10, 3—18. Somewhat later Nemčinov estimated that as much as 9/10 of a dissertation could be citations — with or without citation marks. Judy, R. (1971): op.cit., 222.

66 Godičnoe sobranie Otdelenija ekonomičeskikh, filosofskikh i pravovykh nauk Akademii Nauk SSSR (1957). *VE* 2, 146—148.

67 Naučno-issledovatel'skaja dejatel'nost' Instituta ekonomiki AN SSSR v 1957g (1958). *VE* 4, 150—154.

68 Sorokin, G. (1956): Perspektivnoe planirovanie narodnogo khozjajstva. *PKh* 1, 30—47.

analysis — including its handiness with the labour theory of value as well as its Classical and Soviet roots — was widely propagated.[69]

The fact that mathematical economics had been mostly developed in the West caused special problems. In 1958 I. G. Bl'jumin — the leading analyst of Western economics who in 1931 had dreamed of a future Marxist mathematical economics — together with V. Šljapentokh divided mathematical economics into bourgeois political economy and various practical methods. They concluded that when augmented with proper theoretical foundations, the latter could and should be used in the Soviet Union as well. As a correct example of this, Bl'jumin and Šljapentokh referred to Kantorovič. This seems to have been the second reference to him in Soviet economic literature.[70]

The political economists soon found a division of labour between political and mathematical economics that was to their liking. General problems belonged to political economy, while concrete questions could be studied with mathematical methods. It was often said that political economy studies problems at their qualitative level, while "the mathematical method is just a tool for studying economic problems at their quantitative level".[71] This was to prove much too humble a role for mathematical economics, which was soon to launch an attack.

This chapter has shown that the claim that during the Stalinist decades "...economics and economists had been systematically driven out of print, out of sight, and in many cases out of existence"[72] is only true if economics is defined so as to exclude PES.

In spite of continuous criticisms, the post-1956 Soviet Union did not abandon this child of the Stalinist revolution. In the general destalinization vein, any defects that PES had were explained by the personality of J. V. Stalin. This is what academician Arzumanjan wrote in 1964:

> The wrong way in which Stalin dealt with the subject matter of political economy, especially that of socialism, and his mistaken conception of the role of this science led to its practical impoverishment and to the contraction of its revolutionary-practical importance. ... His mistaken doctrine condemned

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69 Belkin, V. (1957): O primenenii elektronnykh vyčislitelnykh mašin v planirovanii i statistike narodnogo khozjajstva. *VE* 12, 139—148; Nemčinov, V. (1958): O sootnošenijakh rašširennogo vosproizvodstva. *VE* 10, 20—31; Bojarskij, A. (1957): Sebestoimost' i stoimost'. Also see Tretyakova, A.—Birman, I. (1976): Input-Output Analysis in the USSR. *SovStu* XVIII:2, 157—186.

70 Bl'jumin, I.—Šljapentokh, V. (1958): Ob ekonometričeskom napravlenii v buržuaznoj političeskoj ekonomii. *VE* 11, 79—93.

71 Gatovskij, L. (1959): Nekotorye voprosy političeskoj ekonomii socializma na sovremennom etape. *VE* 3, 3—21.

72 Gustafson, T. (1981): *Reform in Soviet Politics*, 63.

> economic research into a general, closed and scholastic study of the socialist forms of ownership.[73]

Calls for a practical science — so central to Khrushchev's science policy — were to lead to the bloom of both mathematical economics and of Lysenko.

At least one attempt to question the existing PES did take place. In 1961 L. A. Leont'ev — a political economist often mentioned above — published an article presenting the economics of the 1920's as an example to follow. Furthermore, he saw no scientific progress after that and mentioned the basic economic law as an example of the poor level of PES. Leont'ev claimed that it had no scientific contents.[74] Khrushchev's main ideologue, L. F. Il'ičev, answered Leont'ev in no uncertain terms: taking the proposed road would make all of PES questionable.[75] And naturally this is something the political leadership could not accept. Abandoning PES might all too easily look like abandoning those policies that had been justified as law-bound by PES. Destalinization was not ready to take that step.

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[73] Arzumanjan, A. (1964): op.cit. Also see Il'ičev, L. (1962b): Nekotorye voprosy razvitija obščestvennykh nauk. *VAN* XXII:11, 7—34, esp. p. 19, which just barely avoids calling the political economy of socialism a false consciousness.

[74] Leont'ev, L. (1961): Ot goloska starogo i trebovanija žizni. *Ekonomičeskaja Gazeta* 20.11.

[75] Il'ičev, L. (1962a): XXII s"ezd KPSS i zadači idologičeskoj raboty. Leont'ev was also criticized by Plotnikov in the same volume and by Atlas, M. et al (1962): Ob osnovnom ekonomičeskom zakone. *VE* 1, 39—52, who denied the Stalinist origins of this law and claimed that abandoning it would imply abandoning the whole system of economic laws of socialism.

PART II

THE SYSTEM OF OPTIMALLY FUNCTIONING SOCIALIST ECONOMY (SOFE)

1. THE MATHEMATICAL BREAKTHROUGH

1.1. *The first step: Planometrics*

Once started, the mathematical breakthrough in Soviet economics was fast. 1956 was a year of many changes, of growing criticisms of the existing economic mechanism and also of the first seminars on using mathematics in economics. The Central Economic-Mathematical Institute (CEMI) was founded only seven years later, in 1963. In a thoughtful article the economic cybernetician E. Z. Maiminas has claimed that these seven years saw the birth of a specific Soviet school of mathematical economics.[1] The least that can be said is that by the mid-1960's Soviet mathematical economics did have the institutional requirements of a discipline fulfilled: their own research institutes (in the first place CEMI, but also the Novosibirsk Institute of Economics and Organization of Industrial Production *(IEiOPP)* — especially after A. G. Aganbegjan became its director in 1967), their own journal (*Ekonomika i matematičeskie metody* (EMM) since 1965) and also chairs in the most important universities. However, before 1966 the main theoretical framework in the field, SOFE, did not exist. The time covered in this chapter is thus better seen as the preparation for it.

Foreign commentators were often caught by surprise in seeing the speed of change in Soviet economics. After decades of being an intellectual wasteland, the books and articles of Kantorovič, Novožilov and Nemčinov seemed to appear out of nowhere. The thin yet long roots of these developments were soon noted, though. They were seen to go all the way from Tsarist Russia through the 1920's to the works of Kantorovič and Novožilov in the 1930's and 1940's. By 1956 Soviet mathematical economics thus already had not only its basic mathematical arsenal, but also its economic interpretation. Several surviving discussants of the 1920's were now seen to lead the advance of the new discipline. But against men like Novožilov,

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[1] Maiminas, E. (1974a): K istorii i perspektivam razvitija ekonomiko-matematičeskikh issledovanii v SSSR. For a comparison, see Hardt, J. et al (1967): *Mathematics and Computers in Soviet Economic Planning*, 201, where John Michael Montias denies the existence of a specific Soviet school of mathematical economics "dealing with special problems or investigating special techniques" since "much if not most" of Soviet work is derivative and utterly remote from any Soviet institutional specifics.

Vainštein, Konjus and Lur'e stood men like Ostrovitjanov, Gatovskij and Paškov of political economy, who had been through all the ideological purifications following the Stalinist revolution. It is all the more remarkable that many political economists were supporting the new discipline.

Political economy was basically in trouble because of its irrelevance for practical problem solving. The grand discussion on the law of value and pricing in the late 1950's was perhaps the final blow in this respect. The insurgent mathematical economists did not waste their chance to drive home the conclusion of the political economists' impotence.[2] Probably for this reason the economic interpretation of shadow prices in Kantorovič's theory of optimal planning was taken as a war-cry. It gave insight unrivalled by anything that PES had to offer.

The duality of physical and value structures of the economy also gave ways of seeing how to reform the economy. Modernizing the economy for increasing consumption was an integral part of the Post-Stalinist Consensus: any policy proposal had to have this potential.[3] An understandable and politically neutral way of saying what was happening was soon found: an extensive model of growth had to give way to an intensive one. Further growth had to be based upon increasing efficiency. PES had concentrated upon extolling the virtues of a mobilizational economy. Its Marxist legacy — for a long time neglected — had little if anything to offer in the new situation. Mathematical economics was thus largely without competition in conceptualizing the questions of equilibrium, efficiency and opportunity cost. The time had come for the Neoclassical approach once thought buried.

In 1956—1963 mathematical economists still largely avoided drawing far-reaching reform implications from their models. The new economics and computers were basically understood as tools for streamlining the traditional management system, especially the overburdened information system. Mathematical economists were promising huge effects with little costs — and keeping the powerful institutions intact. The parallel to Lysenko's new glory is obvious.[4] On the other hand, Khrushchev's institutional reshuffles did indirectly benefit mathematical economics by changing the old institutional equilibrium.

At the same time, the reorganization of the universities and the Academy was connected with the enormous support given to physics, space research, electronic data processing and cybernetics. The new economists referred to their discipline as one of the sciences. They kept writing that economics can and must be made one of the

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2 *Value and Plan* (1960); Judy, R. (1971): The Economists.

3 Breslauer, G. (1982): *Khrushchev and Brezhnev as Leaders*, 23.

4 The essence of Khrushchev's science policy was neatly summarized by L. F. Il'ičev: "practical results are the decisive criterion for the value of science". Il'ičev, L. (1963): *Obščestvennye nauki i kommunizm*, 21. For details and case studies see Breslauer, G. (1982): op.cit.; Medvedev, R.—Medvedev, Z. (1977): *Khrushchev, The Years in Power*; Joravsky, D. (1970): *The Lysenko Affair*; Medvedev, Z. (1969): *The Rise and Fall of T. D. Lysenko.*

exact sciences. The term *ekonomičeskaja kibernetika*, widely used as an synonym for mathematical economics, is one indication of this orientation.

To advance, mathematical economics had to have highlevel support. Characteristically, its first bridgeheads were not in the Academy's Institute of Economics, but at the newly refounded Economic Scientific Research Institute of Gosplan, The Statistical Administration and — most importantly — at the Siberian Branch of the Academy.[5] This branch housed several new or neglected disciplines. Mathematical economics and genetics were among them.

Support from outside, whatever its hesitations or inconsistencies, had to be supplemented with organizers from within the economic profession. This was the role of academician Vasili Nemčinov. After having to leave the Timirjazev Academy of Agricultural Sciences because of anti-Lysenkoism, he worked from 1949 to 1963 as the chairman of the Gosplan Soviet for the Study of Productive Forces (SOPS), thus seeing firsthand the possibilities of using PES empirically. Nemčinov also had a central position within the Academy of Sciences. In 1953 he became a member of the Academy's Presidium and also became the Academician-Secretary of the Department of Economics, Philosophy and Law. Furthermore, his qualifications were not only bureaucratical. A student of mathematical statistics, Nemčinov understood much of what the new economists were writing. His combination of mathematical competence, empirical orientation, bureacratic skill and knowledge in Marxism-Leninism was an optimal one for Soviet science policy. Characteristically, when two conservative economists recently referred to the impossibility of excluding mathematics from economics, they relied upon Nemčinov.[6] Nemčinov's way of thinking, however, was far from that in SOFE, as will be seen below.

Ostrovitjanov, Stalin's curator in political economy, was still administratively powerful. He was a candidate member of the Central Committee and also vice-president of the Academy from 1953 to 1962. But he was unable to intervene effectively in scholarly debates. Even within PES he was to be on the losing side (below, p. 163). If was left to Strumilin, Ostrovitjanov's senior, to be the most prestigeous critic of SOFE.

The importance of foreign example in the mathematical breakthrough should not be forgotten. It was a recurrent complaint that input-output and linear optimization were used — their Soviet roots notwithstanding — for capitalist profit maximization, but not for catching up and surpassing capitalist economies by means of scientific and technical progress, heavily stressed in the 1961 Party Congress. At the same time, Soviet mathematical economists pointed out, Norbert Wiener and others saw better possibilities for using cybernetics and related tools in planned

[5] On Akademgorodok's economics see Šemetov, P. (1978): *Ekonomičeskie issledovanija v Novosibirskom naučnom centre*. On the science policy role of the early Akademgorodok see Adams, M. (1977—78): Biology After Stalin: A Case Study. *Survey* XXIII:1, 53—80.

[6] Moiseenko, N.—Popov, M. (1982): *Matematika v političeskoj ekonomii*, 11.

rather than in market economies. East European sources were also used. Books by Oskar Lange and the East German philosopher Georg Klaus, who were propagating mathematical methods and interpreting them in a Marxist light, were translated into Russian.

The first originally unofficial study group of young scientists in mathematical economists was founded by Nemčinov in the mid-1950's. It soon created connections with Novožilov and Kantorovič in Leningrad. Many of these young scholars as well as Kantorovič moved over to the first research unit in mathematical economics in the Akademgorodok of Novosibirsk. Professionalization was thus under way.[7]

The usefulness of mathematics in economics was soon recognized. The table for theoretical advances and debates was laid in 1959 when Leonid Kantorovič's fundamental book appeared almost two decades after having been basically completed.[8] The same year also saw the publication of a tome edited by Nemčinov and including, among other items, an early essay of Kantorovič and an almost book-length article by Novožilov on comparing costs and results in planning. There were differences as well as much in sommon in the writings of these co-founders of optimal planning. Kantorovič's approach was that of a mathematician writing economics. His basic problem was maximizing production with given constraints and product-mixes. Novožilov, on the other hand, was an economist interpreting the concepts of allocative efficiency. His basic optimization problem was to minimize labour inputs with given outputs and constraints.[9] It is typical of the realist (see above, p. 11) frame of mind of Soviet economists that these approaches were more often seen as contradictory than simply as different ways of looking at the same basic decision structure.

The first all-union conference in mathematical economics was held in Moscow at the turn of the decade. Conference proceedings were published in seven volumes. In 1963 the government decided upon measures to speed up the introduction of data processing in the national economy. CEMI was founded in the same year. Soviet mathematical economics indisputably existed.

This was also the time for increasing economic education. Mere engineering knowledge was not enough for managing a complex economy on an intensive

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[7] Among those working at the Novosibirsk unit were V. S. Dadajan, Ju. I. Černjak, Ju. N. Gavrilec, A. A. Modin, B. N. Mikhalevskij and V. A. Volkonskij — all later of CEMI as well as V. V. Kossov, later of Gosplan.

[8] Translated as Kantorovich, L. (1959): *The Best Use of Economic Resources*. On the history of this book see Vainštein, A. (1966): Vozniknovenie i razvitie primenenija linejnogo programmirovanija v SSSR, 25 note. Vainštein edited Kantorovič's book for publication. Surveys of Kantorovič's work include Johansen, L. (1976): L. V. Kantorovich's Contribution to Economics. *Scandinavian Journal of Economics* LXXVIII:1, 61—80; Smolinski, L. (1977): L. V. Kantorovich and Optimal Planning; Ames, E. (1980): Kantorovich and Production Planning.

[9] The translation *The Use of Mathematics in Economics* (1964) is a selection of articles from the original book.

growth path. Thus Arzumanjan contrasted the stagnating number of economists from the early 1940's to the 1960's with the huge increase in the number of engineers.[10] It was argued that the relative share of economists among scholars had declined.[11] It was also complained that the level of economic education had been very bad. Economists only knew elementary mathematics, if even that. Those graduating from the foremost economics institute, the Moscow State Institute (MGEI), in the mid-1950's had only received three lecture courses in basic mathematics and statistics. The statistician Bojarskij even claimed that teaching mathematics to future economists had been forbidden in some institutions as unnecessary.[12]

In 1961 the teaching of mathematics, statistics and computing science to political economy students was more than doubled, from 300 to 680 hours. Specialization programmes in mathematical economics were soon founded in Moscow, Leningrad and Novosibirsk universities.[13] Twenty years later, in 1980, a conference on the university education of mathematical economics was attended by teachers from 19 institutes of higher education (*vuzy*). Even then some speakers likened the situation to a crisis: students and graduates have insufficient knowledge (especially in economic practice and sometimes in practical data processing), there were grave problems with the teaching as well as with the textbooks (if they existed at all), and computer specialists without any economic education had flooded the economy so that not enough job openings for mathematical economists existed.[14]

The following table gives a general picture of the proportion of economists among all Soviet scientific workers in 1950—1975. Between 1950 and 1960 the proportion of economists generally declined, and relative growth was especially fast in the 1960's. Even then, however, mathematical economics was no favourite among the youth.[15]

The relative growth of economics can be seen in other indicators, too. Thus, from 1950 to 1975 the number of specialized economic journals rose from 16 to 53.[16] The last two decades have also seen a marked interest in the economic education of economic managers as well as of the labour-force in general. Organizing the Academy of National Economy in 1978 was perhaps the clearest example

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10 Arzumanjan, A. (1964): O razvitie ekonomičeskoj nauki i ekonomičeskogo obrazovanija v SSSR. *VAN* XXXIV:9, 3—12.

11 Plotnikov, K. (1962): Tvorčeski razvivat' ekonomičeskuju nauku.

12 Bojarskij, A. (1962): *Matematiko-ekonomičeskie očerki*, 11—12.

13 Kronsjö, T. (1961): Tendencies in Soviet Economic Scientific Education. On the case of Moscow, see *Issledovanija po matematičeskoj ekonomii i smežnym voprosam* (1979), 5—12. The first mathematical economists to become Candidates of Economic Science were V. S. Dadajan, V. V. Kossov and Ju. R. Leibkind, while the first Doctor of Economics was A. L. Lur'e.

14 See Lugačev, M. (1981): Učebno-metodičeskaja konferencija po voprosam prepodovanija ekonomiko-matematičeskikh metodov. *EMM* XVII:4, 811—813.

15 See Churchward, L. (1973): *The Soviet Intelligentsia*, 78—79.

16 Fedorenko, N. (1977): *Optimizacija ekonomiki*, 11.

Table 1. The quantity of scientific workers in the USSR in 1950—1975, in thousands, with the percentage of economists in each group in parantheses.

	1950	1960	1970	1975
Scientific workers	162.5	664.6	927.7	1223.4
among them economists	4.6 (2.8)	13.9 (2.1)	57.5 (6.2)	84.7 (6.9
Doctors of science	8.3	14.8	23.6	32.3
among them economists	0.1 (1.6)	0.3 (1.9)	0.9 (3.9)	1.5 (4.5)
Candidates of science	45.5	134.4	224.5	326.8
among them economists	1.8 (3.9)	4.9 (3.7)	14.9 (6.6)	23.1 (7.1)

Sources: For the total numbers see *Narodnoe khozjajstva SSSR 1922—1982* (1982), 125 and for the number of economists Fedorenko, N. (1977): *Optimizacija ekonomiki*, 11. The percentages have been calculated using unrounded numbers.

of the former.[17] All in all, it is hardly exaggeration to see evidence in this information of the increasing importance of economics and economists in the Soviet Union. Partly, perhaps, this also reflects a resurgent economic realm.[18]

The figures given refer to all economists. During 1960—79 a total of 13,000 persons graduated with the speciality of "economic cybernetics". This is somewhat more than ten percent of all economists leaving an institute of higher education in the single year of 1980.[19] Obviously, most economists receive a very practically oriented education. Applied economics also has an overwhelming position in research. Even the neglect of basic political economy in research was complained about in the 1970's (below, p. 152).

According to Loren Graham, in the Soviet Union of the 1960's cybernetics had the highest prestige in the world.[20] The emphasis given to economic applications of data processing was also typical for early Soviet cybernetic interpretations of economics. The first proposal for automating economic management put forward

[17] On activating the economic education of workers see Baer, J. (1975): Expansion of Economic Education in the Soviet Union. *The Journal of Economic Education* VI:2, 77—81. On the education of managers see Vidmer, R. (1978): *The Science of Management in the USSR: Emulation and the Role of "Americanizers"*. On the Academy of National Economy see Sergeev, E. (1983): Akademija khozjajstvennykh kadrov. *Ekonomičeskaja Gazeta* 20.

[18] This is a central theme in Lewin, M. (1974): *Political Undercurrents in Soviet Economic Debates.*

[19] See Lugačev, M. (1981): op.cit. for the number of economic cybernetics graduates and *Narodnoe khozjajstvo SSSR 1922—1982*, 514 for other information. The size of the editions of the journals give further evidence of the interests of Soviet economists. In 1983 more than 4000 copies of *EMM* were printed, 44000 copies of *VE*, and 115000 copies of the applied and discussion forum *EKO*.

[20] Graham, L. (1973): *Science and Philosophy in the Soviet Union*, 324.

by the central advocates of cybernetics Berg, Kitov and Ljapunov listed five main fields of employment for computers in the national economy:

1 the system of accounting and statistics of the national economy
2 the state planning system
3 the supply system
4 the system of banking and finance
5 the system of managing transport

Point 2 was to include input-output analysis, models of price-formation, efficiency calculations of investments and a certain amount of optimality calculations.[21] Clearly, for Berg and others cybernetics in economic management was mostly, though not only, about automating information flows.

Nemčinov seems to have shared the same conception in the late 1950's. Reviving the old Fourierist dream, so strongly condemned at the time of the Stalinist revolution, he emphasized again and again that economists should become social engineers and economics social engineering. To Nemčinov, being a social engineer primarily meant serving social decision making, thus contributing to abandoning voluntarist planning for scientific planning. The advantages of socialism for him were something to seize, not something coming automatically. In a planned economy, Nemčinov declared in 1963, a voluntarist approach to planning and management can lead to damages no less serious than those of the anarchic capitalist competition.[22]

If this condemnation of Stalinist arbitrariness was common to all the currents of at least some reformism, the relation between politics and economics was not easy to restructure even at a conceptual level. Some economists saw mathematical methods as mere rules to help decision making. Others — Nemčinov perhaps among them — developed far-reaching reform schemes without coming to a clear conclusion of their relation to mathematical economics. Somewhat later, others still explicitly based their reform thinking on the models of mathematical economics.

Nemčinov's characterization of social engineering widened over time. In 1959 his definition of mathematical economics was narrow: "... the object of Soviet econometrics, which is a supportive branch of science, is the theory of economic and planning calculations (teoriju planovykh i ekonomičeskikh rasčetov) and the means of their mechanization".[23] Such studies were often called Planometrics.

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21 Cave, M. (1980): *Computers and Economic Planning: The Soviet Experience*, 3.

22 Cited in Kazakevič, D. (1980): *Očerki teorii socialističeskoj ekonomiki*, 52.

23 Nemčinov, V. (1959): Sovremennye problemy sovetskoj ekonomičeskoj nauki. *VE* 4: 18—34, cited on p. 23. History is not without its ironies. Developing information systems was thought to be necessary for reducing paperwork. Thus, it was said that a factory may have to fill in as many as 2000 forms a year (Černjak, Ju. (1961b): Ekonomičeskaja kibernetika v službe planirovanija. *VE* 11: 124—132). Some twenty years later it was said that planning the enterprise *tekhpromfinplan* may mean calculating even 20,000—40,000 different indicators (Baranov, E.—Modin, A. (1980): Prikladnye ekonomiko-matematičeskie issledovanija i zadači soveršenstvovanija ikh organizacii i planirovanija. *EMM* XVI:4, 629—641). The figures are not directly comparable, but they hardly tell of diminishing informational requirements.

By 1962 Nemčinov no longer used the term econometrics, which at that time was defined as a branch of bourgeois science (compare above, p. 70). Nemčinov's Soviet variant now was "economico-mathematical methods", the basic fields of which were to be

1 developing the mathematical methodology of social valuations included in planning calculations (in practice, the relation of prices to the labour theory of value — a central topic for Nemčinov's own research)
2 developing input-output and other national economic models
3 using optimization models in transportation problems
4 solving different technical-economic problems
5 developing and using mathematical statistics.[24]

In spite of the evident widening of scope during the three years since 1959, such central topics of SOFE as developing economic theory or reforming the economic mechanism were conspiciously absent even in 1962. So as to stress the narrowness of "economico-mathematical methods", Nemchinov heavily emphasized its supportive role: "Experience shows that in socialism econometrical research has boundless possibilities if it is based on Marxist-Leninist economic science and puts itself into the service of national economic and enterprise planning."[25] This approach was widely shared. The head of Gosplan's Computing Centre N. Kovalev[26] held to it, and academician A. A. Arzumanjan, a staunch supporter of economic reforms, warned about a mathematical scholasticism aloof from economic practice. For him, it was as deplorable a phenomenom as the earlier PES had been.[27]

It may thus be speculated whether CEMI, if lead by Nemčinov, would have started to develop SOFE as a theory of the socialist economy. But in 1963 Nemčinov, who was to die a year later, installed Nikolai Prokof'evič Fedorenko as the director of the institute. Fedorenko was an organizational man and a specialist in the economics of the chemical industry — one of the driving forces behind the Soviet chemicalization campaign — but not a practising mathematical economist. His name was to be associated with SOFE.

The official support given to mathematical economics was spurred by the generous promises economists were making. Balancing plans, drawing up plan variants, unifying the interests of the national economic hierarchy and putting

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24 Nemčinov, V. (1962): Ekonomiko-matematičeskie metody i modely. In Nemčinov, V. (1967): *Izbrannye proizvedenie*, Tom 3, 148—150. The list is basically identical to the description of the work of the Novosibirsk unit given in Černjak, Ju. (1961a): Ispol'zovanie matematičeskikh metodov v ekonomičeskikh issledovanijakh. *VE* 3, 156—157.

25 Nemčinov, V. (1961): Ekonometrija. In Nemčinov, V. (1967): op.cit., 135.

26 Kovalev, N. (1961): Problemy vnedrenija matematiki i elektronnykh vyčislitel'nykh mašin v planirovanie. *VE* 12, 118—127.

27 Arzumanjan, A. (1964): op.cit.

an end to storming — all by mathematical methods — would raise social production by thirty to fifty percent, according to Kantorovič and Novožilov.[28] Fedorenko and two other academicians, writing in *Izvestija*, promised that applying cybernetics in the national economy would at least double its rate of development.[29]

In the short run, such promises must have been effective in lobbying for resources, but in the long run they were definitely dangerous, as recent developments have shown (below, p. 153). The first experiences had already shown how reluctant enterprises were to adopt efficient plans. The need for a comprehensive reform, instead of piecemeal changes, was soon seen.[30] Warnings about belief in any "magical effects" of mathematical economics were also coming from economists with positive attitudes to mathematical methods by 1965.[31] But by this time CEMI had already advanced to the wider perspectives of reforming the economy.

1.2. *From Planometrics to national economic models*

The initial research programme of CEMI included the following basic topics

1 a fundamental reform of the informational system of the economy
2 creating a unified network of information processing centres
3 routinization and algorithmization of the daily problems of planning and management
4 developing a dynamic model of national economic rolling planning as the centre of the information system
5 developing mathematical models to solve specific problems arising from the basic model
6 developing the institutions and rules of conduct of the planning system

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28 Kantorovich, L. (1959): *The Best . . .*, op.cit., xxiii; Novožilov, V. (1961): O primenenii matematiki pri optimal'nom planirovanii narodnogo khozjajstva. In Novožilov, V. (1970): *Voprosy razvitija socialističeskoj ekonomiki*, 238; Novožilov, V. (1964): Matematičeskoj analiz socialističeskoj ekonomiki kak važnejšikh faktor rosta proizvoditel'nykh sil. In Novožilov, V. (1970): op.cit., 255—266.

29 Gluškov, V.—Dorodnicyn, A.—Fedorenko, N. (1964): O nekotorykh problemakh kibernetiki. *Izvestija* 6.9. Gluškov was the head of the Institute of Cybernetics of the Ukrainian Academy of Sciences till his death in 1982, while Dorodnicyn was the head of the Computing Centre of the Academy of Sciences.

30 In addition to the general inertia and risk-aversion created by the planning system, this reluctance had its roots in the inappropriate incentive systems and in "planning from the achieved level", which punish efficient production. An alternative to reform was making "progressive" methods compulsory. This was proposed by Aganbegjan in 1968 (see Aganbegjan, A. (1968): Bez prava medlit'. *Izvestija* 18.4.). Later, this proposal has been repeated (below, p. 130).

31 A good example is Gerčuk, Ja. (1965): *Granicy primenenija linejnogo programmirovanija*, 29—30.

It was once again promised that implementing this programme would at least double the rate of the development of the economy.[32]

This programme is vivid proof of the changes taking place in the thinking of the mathematical economists. Although mathematical methods had been previously connected with developing the economic information system or with other specific modelling tasks in the first place, the emphasis was gradually sliding from optimal planning to a system of optimal planning and management, thus connecting the drawing up and implementation of an optimal plan with the hierarchical structure of the economic management system. Giving the main burden in creating the network of data processing centres to Gosplan left more room for the specific approach of CEMI: developing the theory of optimal planning into SOFE.[33]

The theory of optimal planning according to Kantorovič and Novožilov was about economic planning as a static linear optimization problem with given techniques and constraints. This approach is a generalization of a production planning problem — the veneer trust case of Kantorovič — to the level of the national economy. The theory of optimal planning along with its first practical applications were described very clearly by A. L. Lur'e in 1964.[34] Though Lur'e himself thinks within the optimal planning framework, he does not regard it as practically solvable both because of problems in defining the objective function and because of nonlinearity and stochasticity. Therefore, he recommends concentrating on problems more easily exploited.

Lure's conclusion is one possible response to the complexity of national economic planning as an optimization problem. Another is to structure the problem in a new way. Kantorovič's emphasis upon shadow prices as well as the foreign advances in decompositional planning theory showed the way. In 1964 V. F. Pugačev estimated that the national economic planning problem was of the dimension $(5 \cdot 10^6 \times 5 \cdot 10^7)$. He proposed countering this ghost of thousands of equations[35] — already seriously taken up by Kantorovič — with an original approach of approximate aggregation.[36] Pugačev's model — comments about which can be

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32 O rabote Central'nogo ekonomiko-matematičeskogo instituta (1964). *VAN* 10, 3—14; Rappoport, M. (1964): CEMI — naučnyj kollektiv ekonomistov, matematikov i inženerov. *VE* 11, 157. Also see Gluškov, V.—Fedorenko, N. (1964): Problemy širokogo vnedrenija vyčislitel'noj tekhniki v narodnoe khozjajstvo. *VE* 7, 87—92.

33 On developing information systems see Cave, M. (1980): op.cit.

34 Lur'e, A. (1964): *O matematičeskikh metodov rešenija zadač na optimum pri planirovanija socialističeskogo khozjajstva.*

35 It will be remembered that according to von Hayek the dimensions of information needed would make all mathematical planning approaches "humanly impracticable and impossible".

36 Pugačev, V. (1964): Voprosy optimal'nogo planirovanija narodnogo khozjajstva s pomušču edinoj gosudarstvennoj seti vyčislitel'nykh centrov. *VE* 7, 93—103; Pugačev, V. (1968): *Optimizacija planirovanija (Teoretičeskie problemy).*

found in Western literature[37] — was an important background of the proposals of CEMI. It has also had long-term practical success. After original experiments in some ministries, it has been developed since 1968 as a framework for long-term planning. Since 1972 this work has been pursued in cooperation with Gosplan, and finally in 1980 some principles of Pugačev's model were included into the official methods of long-term planning.[38] Another important theoretician approaching the problem of dimensions was Viktor Volkonskij. He proposed using prices to connect a group of functional and sectoral models.[39] The role of this approach in the development of SOFE will be described below.

These approaches to combating the problems of scale and hierarchy were an important advance. Another development concerned final production, which had been taken as exogenous in structure by Kantorovič. Two approaches were proposed towards consumption. Nemčinov, Kacenelinboigen and many medical experts proposed using a normative, scientifically based structure and level of consumption.[40] Volkonskij, on the other hand, put forward the principle of revealed preference.[41] Both of these approaches are still current in Soviet literature.

A third development in the theory of optimal planning was the development of first dynamic models, published in 1965 by Kantorovič. Dynamic models were usually connected with the future perspective rolling planning.[42]

These advances were important enlargements of the original Kantorovič framework. Another and perhaps final step towards SOFE was taken in the work of Kacenelinboigen's group (other members included Ju. V. Ovsienko, E. Ju. Faerman and I. L. Lakhman). Their approach was to be central in the SOFE of the late 1960's. Its spirit is that of Tinbergenian welfare economics: as many of the various institutional arrangements of the economy as possible were to be derived from a minimal number of axioms representing the basic features of a hierarchic complex system. As a later Soviet theoretician put it, this procedure was like building a machine for a given purpose.[43] It was to be the way of rewriting PES and also,

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37 Hardt, J. et al. (1967): op.cit., 189—193, 197—199; Zauberman, A. (1967): *Aspects of Planometrics*, 98—101.

38 Pugačev, V. (1981): Mnogostupenčataja sistema optimizacii planirovanija: rezul'tati i perspektivy. *EMM* XVII:5, 863—872.

39 Volkonskij, V. (1967a): *Model' optimal'nogo planirovanija i vzaimosvjazi ekonomičeskikh pokazatelej.*

40 Zauberman, A. (1965): On the Objective Function for the Soviet Economy. *Economica* XXXII:3, 323—329.

41 Volkonskij, V. (1963): Ob ob"ektivnoj matematičeskoj kharakteristike narodnogo potreblenija.

42 See various articles in Kantorovich, L. (1977): *Essays in Optimal Planning*. As an early appraisal see Montias, J. (1967): Soviet Optimization Models for Multiperiod Planning. In Hardt, J. et al. (1967): op.cit., 201—260.

43 Zavel'skij, M. (1978): O problemakh teorii narodnokhozjajstvennogo optimuma. *EMM* XIV:4, 763—776.

at the same time, creating an optimally functioning economic system. This dual goal, later central to SOFE, was thus first explicitly formulated by the group of Kacenelinboigen in 1966.[44]

Kacenelinboigen's group saw the world as consisting of a hierarchic group of systems with an upper system always determining the goal of its subsystem. Thus the goal of the economy would be given by society, while the goal of the society might come from the laws of organic evolution (and be expressable in maximizing the length of life). The approach of the group was both highly technical and abstract (their basic monograph even has numbered sentences). On a less abstract level they differentiated between a stationary economy, representing optimal functioning with given techniques, and a transition period from the present to the stationary state. The objective of the plan would be to minimize the efficiency loss incurred in the transition to the optimal regime.

Largely, this period in Soviet mathematical economics was one of learning and organizing education. Learning Western economics had an important role here, and translations were numerous.[45] Until quite recently, this had been unthinkable.

1.3. *Is mathematics compatible with Marxism?*

Before SOFE two issues dominated the debates around mathematical economics. This section surveys the general problem of using mathematics in Soviet economics. The debate on shadow prices and the Marxist theory of value is analysed after that.

Both Kantorovič and Novožilov regarded the national planning problem as a constrained optimization exercise. Within this common paradigm they had essential differences.[46] Novožilov, as an economist, was not interested in the formalities

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[44] Kacenelinboigen, A.—Ovsienko, Ju.—Faerman, E. (1966): *Metodologičeskie voprosy optimal'nogo planirovanija socialističeskoj ekonomiki.* According to the book, the work on it had started in 1959. Contemporary criticisms among mathematical economists concentrated on problems of defining the stationary state under technical progress. See Lur'e, A. (1969): O probleme celevoj funkcii socialističeskogo khozjajstva.

[45] Among the authors translated into Russian in the 1960's were (with the year of Soviet publishing): Allen (1963), Arrow—Hurwicz—Uzawa (1962), Ashby (1959, 1964, 1966), Baumol (1965), Bellman (1959, 1969), Beer (1963), Chenery—Clark (1962), Churchman (1968), Dantzig (1966), Gale (1963), Karlin (1964), Leontief (1958), Samuelson (1964 — with the famous cuts), Luce—Raiffa (1961), Tinbergen—Bos (1967), Wiener (1958, 1963, 1966) and also Galbraith (1969). On the case of Samuelson, see Gerschenkron, A. (1978): Samuelson in Soviet Russia — A Report. *Journal of Economic Literature* XVI:2, 560—573. Translating Wiener in the 1950's has been said to have been decided in the Politbureau. See *The Soviet Censorship*, 74. — A curtailment of scholarly translations was complained about in 1978: Šatalin, S.—Danilov-Danil'jan, V. (1978): Za naučnoe rukovodstva idzaniem perevodnoj literatury v oblasti social'no-ekonomičeskikh issledovanii. *VE* 12, 120—121.

[46] It has even said that they did not initially grasp what they had in common. See Kotow, I. (1972): *Mathematische Methoden in der Ökonomie und politische Ökonomie des Sozialismus*, 141.

of modelling. His attempt to show the Marxist legitimacy of the optimizing approach is essential for our analysis.

The Marxism that Novožilov professed in his writings[47] is a fresh interpretation of the standard Soviet approach. For him, Historical Materialism is the general theory of social development. World history displays a tendency for there to be a continually increasing productivity of labour forced by the "law of economy of time" — in *Grundrisse* Marx talks about the "Gesetz der Ökonomie der Zeit".[48] "In the final analysis, it is this law which leads to the replacement of one social system by another, ensuring higher rates of growth and a higher level of productivity. Therefore, the maximization of the rate of growth of labour productivity is the general extremal problem of economic development."[49] This is the general theoretical reason Novožilov gives for the specification of his optimization problem as minimizing labour input with givens. He repeatedly regarded this marriage of Historical Materialism and optimization as the only correct economic interpretation of them both.[50]

Taking opportunity costs into account in price setting was Novožilov's central policy message. Reproducible products were to be priced following shadow prices, user's rents were to be paid on intermediate products, differential rent on natural resources and interest on capital goods. Already in 1959, Novožilov put forward his famous distinction between direct and indirect centralization.[51] Contrary to some of his followers, for Novožilov these two ways of centralized decision making were not pure alternatives. He argued that direct centralization — or administrative management — should always have predominance over indirect centralization — or price guidance — as shadow prices would be derived from national economic models.

Kantorovič's approach was that of a mathematician who had advanced from a partial problem to the general theory of optimization. Given a partial model with given resources techniques and produxt mix, he was ready to propose using shadow

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47 It has been proposed that Novožilov's Marxism was mere camouflaging (Katsenelinboigen, A. (1980): *Soviet Economic Thought and Political Power in the USSR*, 41) but here we proceed taking it to be serious.

48 This law has been interpreted to mean at least a) the necessity of allocative proportionality, b) a historical tendency for diminishing live labour input in production and c) a historical tendency for producers to use their time freely.

49 Novozhilov, V. (1959): Cost-Benefit Comparisons in a Socialist Economy. In *The Use* ... (1964), op.cit., 139.

50 Furthermore, Novožilov pointed out the difficulties of devising a national economic utility function. The natural counterargument raised was Novožilov's assumption of homogenous labour. — Recently Morishima and Catephores have interpreted the labour theory of value in a Novožilov-type framework, obviously unaware of his work. See Morishima, M.— Catephores, G. (1978): *Value, Exploitation and Growth.*

51 Novozhilov, V. (1959): op.cit.

prices in setting wholesale prices.[52] To ward off foreseeable criticisms, Kantorovič showed in his 1959 book how shadow prices and the labour theory of value can be reconciled,[53] forcefully denied having anything to do with bourgeois vulgar economists' price theories and also dissociated himself with all theories of market socialism.[54] All Kantorovič's objections notwithstanding, these topics were to be central in the discussions ensuing.[55]

Even originally, Kantorovič's approach to planning did not have the unanimous support of mathematical economists. In his preface to Kantorovič's book, Nemčinov emphasized that shadow prices are mere tools following from the allocation problem and thus necessarily with a limited use. They would be applicable to secondary calculations, not to determining plans or prices, according to Nemčinov. This was not mere tactical calculation, but would be repeated by Nemčinov several times during the years to come. Another critic of Kantorovič among the new mathematically inclined economists was Abel Aganbegjan, the future leader of Novosibirsk economists. To him, Kantorovič's approach was too narrowly technoeconomic to be an adequate description of socialist reproduction.[56] In 1960 Aganbegjan's voice was a dissenting one, but some ten years later it would be widely shared among mathematical economists.

At the first all-union conference on mathematical methods in economics, nobody was explicitly against using mathematics.[57] Political economists like Kac, Kronrod, Mstislavskij (compare above, p. 69) and Notkin did, however, emphasize that using mathematics must be strictly subordinated to political economic analysis. It might otherwise be a Troyan horse bringing bourgeois economic modes of thought

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52 Kantorovich, L. (1959): *The Best Use . . .*, op.cit., 135. As Zauberman has pointed out, Kantorovič is open to an objection of inconsistency here, as he also admitted that a unified optimal plan was not possible because of computational and informational difficulties. See Zauberman, A. (1967): op.cit., 62—71.

53 Lur'e, one of the economists regarding these excercises as scientifically unnecessary, pointed out that this proof was based on an arbitrary selection of the numeraire. Lur'e, A. (1964): op.cit., 258 note. An obvious counterargument is possible: perhaps selecting the numeraire is not arbitrary if given a realist theory of science.

54 Kantorovich, L. (1959): op.cit., 101—107, 151.

55 The basic references in English are Zauberman, A. (1967): op.cit.; Dobb, M. (1967): *Papers on Capitalism, Development and Planning*; Judy, R. (1971): op.cit.

56 Aganbegjan, A. (1960): O primenenii matematičeskikh metodov v ekonomičeskom analize. *VE* 2, 54—66.

57 *Obščie voprosy primenenija matematiki v ekonomike i planirovanii* (1961). Aganbegjan's article mentioned in note 56 is part of the same discussion, as are: Bojarskij, A. (1961): K voprosy o primenenii matematiki v ekonomike. *VE* 2, 59—72; Gatovskij, L.—Sakov, M. (1960): O principial'noj koncepcii ekonomičeskikh issledovanii. *Kommunist* 15, 79—90; Kac, A. (1960a): O nepravil'noj koncepcii ekonomičeskikh rasčetov. *VE* 5, 107—118; Kac, A. (1960b): Ekonomičeskaja teorija i primenenie matematiki v ekonomike. *VE* 11, 92—103; Mstislavskij, P. (1961): O količestvennom vyrašenii ekonomičeskikh svjazej i processov. *VE* 2, 95—106.

to the Soviet Union, and they added that this danger was already obvious. While the optimal planners together with the mathematician Kolmogorod denied that using marginal calculus meant adopting the marginal utility theory, these political economists — together with Gatovskij, Sakov, Veduta and the professor of statistics Bojarskij[58] — immediately connected Kantorovič and Novožilov not only with Jevons but also with Tugan-Baranovskij, who had, after all, tried to connect the labour theory of value with the theory of marginal utility (see above, p. 46).

The idea that economic theory sets its requirements according to the mathematical tools to be used is perfectly sensible, but implicitly a writer like Notkin was denying the ideological neutrality of mathematical calculus, claiming it was based on "subjectivist bourgeois theories".[59] This idea has not been forgotten. In 1982 two conservative economists, after noting that some mathematical tools of bourgeois economics fitted the needs of Marxism better than those of bourgeois theory, continued by commenting on mathematical methods in general: "... this set of tools was mainly created for the specific needs of the apology of bourgeois society and cannot sufficiently satisfy the needs of Marxist political economy".[60] As these writers have not specified what kind of mathematics they have in mind, their invocations simply act as a refutation of existing approaches.

Echoing the earlier discussions on the cognitive role of statistics (above, p. 66, note 14), some people were asking whether mathematics could add to economic knowledge. Kantorovič, for one, saw mathematics as laying bare previously unknown laws. Scientific progress would not come from adopting ready-made theories; he thought that the views of optimal planning and Marxist theory should be united.[61] The implication was clear: Marxist theory also had to change. Most political economists held to the division of labour previously sketched: they would find qualitative laws while mathematics was for quantities.[62] The rule of this arbitrary and ignorant distinction was not to last for long, however. The general idea of the primacy of existing theories found support elsewhere in addition to

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58 Bojarskij, A. (1962): op.cit., 357—360. Bojarskij, Kac and Kronrod were to be the most active critics of SOFE.

59 *Obščie voprosy* ... (1961), op.cit., 194.

60 Moiseenko, N.—Popov, M. (1982): op.cit., 32. As far as mathematics is based upon a natural philosophy, its world-view can be discussed — as has been the case in the recent catastrophe theory craze — but some Soviet writers (see, for instance, Notkin) seemed to deny any extremal problems in the socialist economy.

61 Kantorovič seems to have had an outspoken opinion of earlier Soviet economics. In the account of the all-union conference given in *Voprosy ekonomiki* (Matematičeskie metody v ekonomike (1960). *VE* 8, 122) Nemčinov is quoted as censuring him of "underestimating and disparaging" the work of the economists. Any words of Kantorovič to this effect do not appear in *Obščie voprosy* ... (1961), op.cit.

62 Bojarskij expressed this opinion in his *VE* article. The editors (Gatovskij and others) added a note saying that they agreed "in general", thus giving a measure of prestigeous approval.

political economists. Thus the mathematician Kolmogorov called for scientific evolution and not revolution. For him the economic foundations of planning already existed, and economists had to study Marxism more thoroughly.

Though a topic more thoroughly discussed some years later, even in the beginning of 1960's the relation between shadow prices and the labour theory of value was under consideration, too. Optimization gives value to all scarce resources, while the labour theory of value, naturally, imputes value to labour only. This divergence was the focus of disagreements. Kantorovič and Novožilov insisted on working strictly within the Marxist theory of value. They argued that the formal parallels with bourgeois theories were not important, but the causal interpretations given to formulas were.[63] Kantorovič claimed that labour was indeed the only source of value, other factors just determining the socially necessary quantity of it. In this way, he invoked old debates on the correct interpretation of this overly flexible term of Marx (compare above, p. 45). On the other hand, several political economists saw this as a new — and therefore necessarily bourgeois! — interpretation of Marx's doctrine.[64]

During the discussions of 1960—1961, nobody denied the usefulness of linear optimization in local problems, but its relevance for the national economic level was fiercely debated. Even while Kantorovič was careful enough to foresee much further work in developing the methodology of optimal planning, he was commonly accused of shifting from micro to macro levels of analysis without proper consideration. A sympathetic critic, Abel Aganbegjan, pointed out the omission of social problems and investment planning in the static model of Kantorovič. Perhaps Mstislavskij, the most extreme of the critics, was echoing his opinions of the late 1940's when denying the existence of any global optimization problem. For him, measuring labour productivity, price formation and allocating deficient commodities (this is how he understood scarcity) were totally separate questions. In a similar vein, Kac denied the existence of opportunity costs outright. He asserted that any decision should be made separately, without taking any feedbacks into consideration. In a way, Kac almost formulated a reasonable argument. He pointed out that static optimal planning was about optimal adaptation to an existing situation. Like Voznesenskij in the early 1930's (above, p. 58), Kac saw the real task in changing the restrictions. The problem in Kac (as well as in Notkin and Veduta, who shared the same argument) is that the "choice vs growth" argument, which

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63 This point was made by Meek, too. Meek, R. (1974): Value in the History of Economic Thought. *History of Political Economy* VI:3, 246—260.

64 As the correct Marxist-Leninist theory already existed, any new theory had to be bourgeois according to the logic explicit in some arguments. The optimal planners, too, used some disingenious arguments. Thus Novožilov once noted that existing planning used only arithmetic, not higher mathematics. Didn't Engels, Novožilov asked seemingly in earnest, say that the former belongs to formal and the latter to dialectical logic? See *Obščie voprosy* ... (1961), op.cit., 121—122. The possibility of biting scorn cannot obviously be excluded.

had at least some relevance in the times of the mobilizational economy, was turning into a denial of all scarcity. Deficiencies, they were saying, could and should always be abolished. After decades of Stalinist political economy, even the concept of scarcity could be *terra incognita* for these professors.

1.4. *Prices and the labour theory of value*

The second round of discussions on optimal planning took place in the mid-1960's in the shadow of the Kosygin reforms. The proposed role of profitability in enterprise decision making was putting new demands upon prices, and a price reform — finally taking place in 1967 — was forthcoming. Though the optimal planners were too small a group to have a central position in the reform, their proposals were sufficiently close to those of many others to arouse wide debate.

Even less than before did anybody now oppose mathematical methods, data processing or the vocabulary of optimizing. Most enthusiastic political economists could even not be satisfied with the perspective of optimal plans, but were calling for "more" or "most optimal" plans. Confused terminology could not hide the existence of widely different opinions anyway. The relation between mathematical and traditional economic theory had to be taken up anew, partially because of the interest it had invited abroad.[65] This was the immediate background to the famous round-table discussion of 1964.[66]

The general message the discussion tried to convey was that no contradictions between mathematical methods and economic theory existed as long as the former were used "in a proper way". Only a few political economists, perhaps the foremost of them being I. V. Kotov,[67] saw any influence from those methods on the theory of PES. Many more were worried about the viewpoints of "certain representatives of mathematical economists". By criticizing Soviet economic planning and science, they had harmed the international prestige of the country. Furthermore, they had uncritically imported Western economics. One critic, M. Kolganov, even worried about "the scientific youth", who only read linear algebra without

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65 See Campbell, R. (1961): Marx, Kantorovich and Novozhilov: Stoimost versus Reality; Leontief, W. (1960): The Decline and Rise of Soviet Economics; Zauberman, A. (1962): Revisionism in Soviet Economics. A different perspective was presented by Johansen, L. (1963): Labour Theory of Value and Marginal Utilities.

66 *Ekonomisty i matematiki za kruglym stolom* (1965). This discussion was obviously intended for foreign readers, but only appeared in Russian.

67 Kotov, I. (1965): Nekotorye voprosy primenenija matematičeskikh metodov v ekonomike i političeskaja ekonomija socializma. *VE* 11, 99—111.

any analysis of the social role of bourgeois mathematical economics.[68] The same P. P. Maslov who had been criticized for importing econometrics onto Soviet soil (above, p. 70) now took the use of elasticity concepts and indifference curves in the Soviet Union of fixed prices and many free commodities as examples of incorrect importation. He called for a specific Soviet mathematical economics, independent of Western theories.[69]

Not all economists had accepted the logic of scarcity even by then. But instead of using general argumentation, Bojarskij, Kac and Strumilin attacked by using arbitrary examples of senseless optimization.[70] Another popular argument was to claim that the optimal planners were supercentralizers wanting to subordinate the whole economy under a single model and system of computers. This argument was not totally unfounded, as ideas with this flavour had been expressed by the Kiev cybernetician Gluškov, for whom perfect centralization was an unattainable ideal[71] as well as by the Novosibirsk economist K. K. Val'tukh, who in a book published in 1965 proposed creating an information system that would know the efficiency of all the means of production of the country at any particular moment.[72] Perhaps Al'b. L. Vainštein of CEMI was interpreted in the same way, as he regarded optimal planning and markets as diametrically opposed in the round table discussion. But Vainštein's thrust was that of a decentralizer: as optimal plans could not be implemented in the near future, the role of markets should rise appreciably. But it is also true some of Fedorenko's writings could be and were interpreted as centralist.[73]

In the great discussion about the law of value, political economists had proposed half a dozen different basic approaches to interpreting this Marxian concept for

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68 Kolganov, without a doubt, was a somewhat extreme critic. As extremal methods lead into subjectivist theory, he wanted a new, Marxist mathematics; as opportunity costs are not shown in the accounts of enterprises, he denied their existence; as the structure of the economy is part of its optimum, he denied that the optimum could be formalized. Kolganov, M. (1964): Političeskaja ekonomika i matematika. *VE* 12, 111—125.

69 Maslov's career seems interesting. In the late 1940's he was accused of mistakes akin to cosmopolitanism. In 1960 he denied the applicability of games theory and stochastic interpretation of economic magnitudes in a planned economy (*Obščie voprosy* ... (1961), op.cit., 243—249). In 1967, referring to the work of Konjus from the 1920's, he wanted a consumer's theory without marginal utilities to be created (Maslov, P. (1967): Matematičeskoe rassuždenie v ekonomičeskoj nauke. *VE* 3, 122—132). Perhaps ironically, the ideas of Konjus have been taken up in recent Western consumer's theory. See Deaton, A.—Muellbauer, J. (1980): *Economics and Consumer Behaviour*, 58.

70 They are criticized in Virčenko, M.—Puzanova, G. (1967): O vozmožnostjakh primenenija ob"ektivno obuslovlennykh ocenok v ekonomičeskikh issledovanijakh. *VE* 3, 111—121.

71 This is his opinion in the round-table discussion. Also see Katsenelinboigen, A. (1980): op.cit.

72 See Kirillov, S. (1969): *Učet potrebitel'noj stoimosti produkcii kak faktor povyšenija effektivnosti obščestvennogo proizvodstva*; 76—77.

73 Fedorenko, N. (1965b): Važnaja ekonomičeskaja problema. *Pravda* 17.1.

socialism.[74] Seeing the practical impotence and lack of a common frame of reference in political economy, the optimal planners put forward their own theory. As presented by Fedorenko in 1966, the conception differed clearly from PES: price was taken to be a partial derivative of the global objective function. The first programme of CEMI on price setting was as follows: prices should be derived from and change with the plan, and they should be equal to the costs of the least efficient enterprise included in the plan; payments on the use of capital, natural resources and scarce manpower should be included into costs; and the centre should only decide upon aggregated prices, leaving disaggregation for enterprises.[75]

According to Fedorenko, the objective function should be based on social utility. He did not touch upon the relation between this theory of prices and the Marxist theory of value. Soon there were to be three different opinions on this question among mathematical economists. Lur'e was the leading proponent of a view seeing Marx's theory as only relevant for capitalism. Socialist pricing should and could therefore have nothing to do with the labour theory of value.[76] Novožilov, Sukhotin, Maiminas and others took the opposite view: the only correct interpretation of this theory is provided by the optimizing approach in socialism. Aganbegjan and Bagrinovskij took the middle-of-the-road viewpoint, using duality theorems to show — actually following Lur'e — that there really was no contradiction between maximizing utility and minimizing labour input.[77]

But most political economists did see a contradiction here. Ostrovitjanov opposed giving Lenin prizes to Kantorovič, Novožilov and posthumously to Nemčinov because they had abandoned the labour theory of value and had based their theories on scarcity in a time when — as the CPSU programme told — the country was soon to live in abundance.[78] In the 1966 discussion on optimal planning, he further claimed that marginal cost pricing will raise prices, lower the standard of living and impede technical progress (by assuring the profitability of all enterprises).[79] The other grand old man of Soviet economics, Strumilin, also saw marginal cost pricing as — literally — leading to inflation and unemployment, and

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74 They are reviewed in Nemčinov, V. (1969): Obščestvennaja stoimost' i planovaja cena. In Nemčinov, V. (1967—69): *Izbrannye proizvedenie*, tom 6, 363—387.

75 Fedorenko, N. (1966): Cena i optimal'noe planirovanie. *Kommunist* 8, 84—93.

76 Lur'e, A. (1967): Matematičeskie metody v issledovanii socialističeskoj ekonomiki i ekonomičeskaja teorija. *Vestnik Moskovskogo universiteta, serija ekonomiki* 2, 38—48; Lur'e, A. (1968): K. Marks i problemy socialističeskoj ekonomiki. *EMM* IV:6, 835—842.

77 Aganbegjan, A.—Bagrinovskij, K. (1967): O zadačakh narodnokhozjajstvennogo optimuma. *VE* 10, 116—122. The point had been noted a year earlier by Lur'e. See Lur'e, A. (1966): Abstraktnaja model' optimal'nogo khozjajstvennogo processa i o.o. ocenki. *EMM* I:1, 12—30.

78 Pro and con — compare conclusions (1965).

79 *Diskussija ob optimal'nom planirovanii* (1968), 161—174.

he saw indifference curves as bringing crises and unemployment.[80] Assurances about the primary importance of relative prices were probably not very effective against eruptions like this, keeping Soviet ideological priorities in mind.

Basically, many political economists saw a struggle between Marxism and bourgeois economics being waged on Soviet soil. This is why they saw these discussions as being "of immense importance of principle", as the corresponding member of the Academy of Sciences and a veteran of the Stalinist Cultural Revolution Paškov said.[81] All the practical issues of pricing, though not forgotten, were left in the shadow of ideological debates reminding many veteran participants of the time of the Stalinist revolution.[82]

The changes which have taken place in the price theories of optimal planning and SOFE have been deep, though the basic principles of connecting prices with plans and of calculating costs more correctly have been consistent over time. Originally, price was defined in optimal planning theory as a partial derivative of the global objective function. This is equal to suitably calculated marginal production costs, and often for practical purposes, as in Fedorenko's fundamental paper of 1968,[83] this was set equal to the costs of the least efficient enterprise.

Viktor Volkonskij's demonstration in 1967 of the equivalence of the equilibrium resulting from optimal planning and perfectly competitive markets[84] contributed to an emphasis upon equilibrium pricing. A third approach belonging to the group of Kacenelinboigen connected the price mechanism with the properties of hierarchical management (below, p. 107).

These interconnected but different approaches led to several practical rules for pricing, the main proposals being enlarged cost-plus pricing, equilibrium prices and marginal cost pricing. During the 1970's, Nikolai Petrakov proposed "prices of a planned equilibrium". The most important prices or price aggregates should be centrally derived as the shadow prices of an optimal plan, while all the rest of the pricing should equilibrate demand and supply.[85] In several articles Petrakov

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80 Strumilin, S. (1968): O kriterii optimal'nosti. *VE* 4, 114—130.

81 Paškov, A. (1967): Razvitie v SSSR političeskoj ekonomii socializma. *VE* 10, 9—24, cited on p. 23.

82 Other articles in the debate are Batyrev, V. (1967): Voprosy teorii stoimosti pri socializme. *VE* 2, 36—47; Burštein, G. (1968): O teorii planovogo cenoobrazovanija. *VE* 2, 57—62; Kac, A. (1965): O tak nazyvaemoj "Narodnokhozjajstvennoj sebestoimosti". *VE* 2, 115—128; Kronrod, Ja. (1968): Ekonomičeskij optimum i nekotorye voprosy metodologii optimizacii narodnokhozjajstvennykh planov. *VE* 1, 50—62; Matlin, A. (1968): Ceny i ocenki optimal'nogo plana. *VE* 10, 95—104.

83 The legitimity of this interpretation was the source of much fruitless discussion in the 1960's.

84 Volkonskij, V. (1967a): op.cit.

85 Petrakov, N. (1970): Upravlenie ekonomiki i ekonomičeskie interesy. *Novyj mir* XLVI:8, 167—186; Belokh, N.—Petrakov, N.—Rusakov, V. (1982): Dokhody, predloženie i ceny — problema sbalansirovannosti. *IAN* 2, 71—77.

has argued for the Marxist orthodoxy of this proposal: what is in the optimal plan must be socially necessary.[86] Basically, Petrakov's essays in Marxist theory of value are a development of the arguments of Novožilov.

In the 1980's Petrakov has complemented the proposal of "prices of a planned equilibrium" with a new approach of "prices of planned enlarged reproduction".[87] He now admits that the former proposal would in effect raise the general level of wholesale prices and thus endanger the stability of retail prices. The new approach proposes adding to production costs a mark-up for branch self-financing of investments fixed in the five-year plan. Such prices should be used in cases of structural policy importance, while prices in the sphere of decentralized decision making should reflect marginal efficiency.

The existence of several pricing approaches within SOFE has been a frequent target of criticism. The labour theory of value thinking of Kantorovič and Novožilov has been contrasted to the utility approach of Lur'e and Šatalin. Practical recommendations have been contrasted to basic shadow price logic. The pricing ideas of CEMI are still often seen as alien to Marxism, akin to market socialism and overly equilibrium-oriented.[88] But these criticisms should be seen against the general development from optimal planning to SOFE.[89] This is the topic of the next chapter.

But before that, one more remark out of chronological order may be in place. The equilibrium orientation of the price theories of optimal planning theory and of SOFE is a result of a normative approach seeing the optimal regime as an equilibrium state. This does not mean that disequilibrium analysis had been totally neglected in Soviet mathematical economics. Since the early 1970's this field has been pursued — and originally ignorant of contemporary Western advances — by such scholars as V. M. Polterovič of CEMI and the late E. M. Braverman.[90] This

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[86] Petrakov, N. (1971b): *Khozjajstvennaja reforma: plan i ekonomičeskaja samostojatel'nost'*; Petrakov, N. (1974a): K probleme soizmerenija zatrat i rezul'tatov. *EMM* X:4, 664—676.

[87] Petrakov, N. (1983a): Ob otraženii planovykh material'noveščestvennykh proporcij v sisteme cen. *EMM* XIX:2, 228—242.

[88] See Komin, A. (1971): *Problemy planovogo cenoobrazovanija*; Komin, A. (1974): Cenoobrazovanie — važnyj učastok ekonomičeskogo upravlenija. *VE* 3, 16—25; Jakovec, J. (1974): *Ceny v planovom khozjajstve*; Manevič, V. (1975): *Razvitie teorii planovogo cenoobrazovanija v sovetskoj ekonomičeskoj literature*, 100—136; *Potrebitel'naja stoimost' produktov truda pri socializme* (1978) (especially the speeches by Paškov and Eremin). A modern textbook for Belorussian economic universitaties and faculties on price theory does not even mention the optimizing approach to prices. See Zav'jalkov, A. (1981): *Ceny i cenoobrazovanie v SSSR*.

[89] This advance beyond shadow prices is by no means restricted to the economists of CEMI. See, for example, Sidorov, M. (1982): *Ceno, proizvodstvo i potreblenie*, 100—126.

[90] For surveys, see Braverman, E.—Levin, M. (1981): *Neravnovesnye modeli ekonomičeskikh sistem*; Kantorovič, L.—Katyšev, P.—Kiruta, A.—Polterovič, V. (1982): O nekotorykh napravlenijakh issledovanij v matematičeskoj ekonomike.

approach, however, has not changed the basic strategies of CEMI, which are fundamentally based upon simple optimization and equilibrium models. In a country which is according to most analysts characterized by increasing deficits and worsening disproportions, this should be seen as a most revealing consequence of the normativeness of SOFE. Dismissing such features of existing reality as mere faults to be corrected — and not basic facts to be explained and taken into accounts in recommendations — is a sign of insufficient attention given to problems of feasibility. It should be added that at least some of the latest statements from CEMI seem to be admitting this (below, p. 154).

2. PRESENTING SOFE

2.1. *Currents within SOFE in the late 1960's*

The mid-1960's — in the case of mathematical economics circa 1963—1968 — were an intriguing period in the history of Soviet social science. The preceding destalinization had opened up new possibilities, but discussions still had quite strict limits, "harebrained scheming" ruled, and the newly-born social sciences could not have reached a high level, as has been pointed out, for example, concerning economic reform discussions.[1] One of the changes promised after Khrushchev's removal was to happen in the style of management. According to an apt characterization, the Bolshevization of science was to give way to a scientification of Bolshevism. This was leading to a new upsurge in social sciences, and mathematical economics was among the main beneficiaries. All the economists nominated to be academicians in 1964 were mathematically oriented. Fedorenko of CEMI was one of them. The next year, Kantorovič, Novožilov and Nemčinov were given the Lenin prize in spite of the old political economists' fierce protests, touched upon earlier. The final stamp of approval was given in 1967, when a Central Committee decision on the tasks of the social sciences regarded "developing the theory and methods of the optimal planning and functioning of the socialist economy" as one of the most important tasks of economic science.[2]

At the same time, the first specialists of mathematical economists were graduating from universities. They were few in number and their education also left much to be desired. There was a lack of qualified teachers and textbooks. All the time, however, the optimizing approach kept winning over new converts. The journal of CEMI since 1965, *Ekonomika i matematičeskie metody* (EMM), had a central role here. The optimal planners, even then, were a small even if aggressive minority. For most economists, optimality simply meant "the biggest results with the least costs".

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[1] The most interesting proposals are in Nemčinov, V. (1965): *O dal'nejšem soveršenstvovanii planirovanija i upravlenija narodnym khozjajstvom.*

[2] See *Kommunist* 1967:3, 3—13. Developing SOFE is still justified by this decision. See, for instance, Lopatnikov, L. (1979): *Kratkij ekonomiko-matematičeskij slovar'*, 275.

The Soviet political economy of socialism never was a monolith. Neither were all mathematical economists sofeists — proponents of SOFE. Basically, it was just SOFE — the "general theory" proposed by CEMI — that proved to be the dividing line. The differences between Nemčinov's and Fedorenko's approaches have been pointed out above. Even later, many saw the research programme of CEMI as being too theoretical and would have preferred an approach promising faster concrete results. Kantorovič, the single most important source of SOFE, never worked at CEMI, had a markedly applied interest and never accepted the abandonment of the labour theory of value, so pronounced in the work of some advocates of SOFE. The approach of the Kiev cyberneticians was typically more technical and also more centralist than that of CEMI.[3] There were also differences between the Novosibirsk economists, lead by Aganbegjan, and CEMI. The Siberians were putting much stress upon regional applicability and input-output. Shadow prices had little place in their models.[4]

Finally, perhaps the most important thing to remember is that neither CEMI nor Akademgorodok was a monolith. This fact will be amply documented below.[5]

As shown above, the early Soviet mathematical economists gave far-reaching promises on the future benefits of their methods. This path was continued even later. Fedorenko claimed in 1968 that the basic problems of industrial planning had already been solved and put forward ambitious shortrun goals of practical applicability. Both contemporary and later Soviet writers have noted how far from the truth Fedorenko was even on a purely theoretical plane.[6] By the mid-1960's words of caution were already to be heard. Jakov Gerčuk, who had already in the 1940's been one of those trying to use Kantorovič's methods in practice, saw the advance of mathematical methods as a typical example of scientific innovation: quantity all too easily crowds out quality. Numerous complicated problems were being forced, he complained, into the Prokrustean bed of simple mathematical methods. Making exaggerated promises had meant writing huge "notes payable in the future". While developing the methodology of modelling should have first

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3 See Gluškov, V. (1975): *Makroekonomičeskie modeli i principy postroenija OGAS.*

4 The basic contribution of the Akademgorodok economists of the 1960's is *Problemy narodno-khozjajstvennogo optimuma* (1969).

5 As partial contemporary surveys see Kobrinskij, N.—Matlin, A. (1967): Ekonomiko-matematičeskie modeli planirovanija obščestvennogo proizvodstva (obzor). *EMM* III:2, 223—239;Dadajan, V. (1970): *Ökonomische Gesetze des Sozialismus und Optimale Entscheidungen.*

6 Fedorenko's position is in Fedorenko, N. (1968): *O razrabotke sistemy optimal'nogo funkcionirovanija ekonomiki.* Regarding the local criterion of efficiency Fedorenko was relying on Pugačev's proposal of using profit calculated in fixed prices (see Pugačev, V. (1968): *Optimizacija ekonomiki*). As Raimundas Karagedov from Novosibirsk has argued repeatedly since 1969, neither Pugačev nor Fedorenko bring forward sufficient arguments for this quasi-competitive slution. Neither do they show how profit maximization could be instituted. Karagedov, R. (1979): *Khozrasčet, effektivnost' i pribyl' (očerki teorii)*, 255—267. Also see *Satalin, S.* (1982): *Funkcionirovanie ekonomiki razvitogo socializma*, 267—269.

priority, this veteran sighed, most researchers were devoting their time to developing ever new variants of the algorithms of linear programming.[7]

Though the rather similar position of the different social sciences in the Soviet Union of Brezhnev is a fact, the important differences in the cases of mathematical economics, on one hand, and sociology and political science, on the other, must be clearly seen. Sociology came into the open very fast in the mid-1960's and received its legitimacy in the same Central Committee decision of 1967 as SOFE, but in contradistinction to the latter, it never published farreaching ambitions of theoretically revolutionizing Soviet social science. As Elizabeth Weinberg has concluded,[8] Soviet sociology from the very beginning was "concrete social research" that paid markedly functionalist attention to societal problem-solving. Sociology did go through an ideological purification in the early 1970's, but the main thrust then involved accusations against certain sociologists of forgetting Marxism-Leninism, not of attacking it directly.[9] Naturally, even just bypassing Marxism-Leninism in concrete studies was — probably rightly — interpreted as a denial of its relevance. Even then, the case of sociology is quite different from SOFE, which, as will be documented below, launched a wide attack against the traditional Marxist-Leninist political economy. Sociology came to fulfill an empty space, while SOFE (contrary to the idea of Nemčinovian economic-mathematical methods) did not rest content with that.

The case of political science is a third variant of change in Soviet social science. Its status has been politically sensitive and its relations to Scientific Communism unclear. Therefore, Soviet political science never went through the same phase of becoming independent as both sociology and mathematical economics did. The research interests of Soviet political science are still quite strictly limited.[10]

In spite of the differences, a clear science policy connection between mathematical economics and sociology existed. The need to complement abstract models with concrete social data was understood in CEMI. The institute has had its own sociologists, and the connections to the Academy of Sciences sociological institute have been quite close.[11] In the 1960's both directions also received support from the same quarters. An example of this is the old apparatchik and ideologue A. M.

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[7] Gerčuk, Ja. (1969): K voprosu o primenenii ekonomiko-matematičeskikh metodov na praktike. *VE* 4, 105—114.

[8] Weinberg, E. (1974): *The Development of Sociology in the Soviet Union*; Hahn, J. (1977): The Role of Soviet Sociologists in the Making of Social Policy.

[9] Accusations of anti-Marxism and anti-Sovietism also appeared. See Matthews, M. (1978): Introduction.

[10] Hill, R. (1981): *Political Science, Politics and Reform in the Soviet Union.*

[11] This institute was called the Institute for Concrete Social Research from 1968 to 1972 and the Institute for Sociological Research after that.

Rumjancev, a contributor to EMM and a one-time head of the Institute for Concrete Social Research.[12]

In the 1970's the border between economics and sociology was often blurred, especially in the fields of consumption and labour, as socio-economic problems have received a pronounced position in economic research. Quite expectedly, many researchers of CEMI in these fields — be they sociologists or economists — have a markedly sceptical attitude toward abstract theories in general and toward SOFE in particular.

Originally, the basic theoretical orientation of CEMI was concentrated upon hierarchical systems maximizing a global objective function. Models based upon this thinking were regarded as the proper point of departure for building the nationwide network of computer centres. This was a task first sketched in the early 1960's, and CEMI was contending for the role of the leading organization in this work for several years.

Little by little, another approach was supplementing that of hierarchical systems. Juri Gavrilec took steps into the direction of general equilibrium thinking in 1967. He analysed an economy where the objective function — with the arguments of satisfaction of needs and labour — was a weighted sum of the utilities of different population groups, with the weights given *a priori* — by political decisions. An interesting feature of Gavrilec was to take an "as if" attitude toward the agents' maximization, while the society as a whole was taken to maximize "with regard to its objectively existing preferences". To Gavrilec, objective political decision-making was thus a clear possibility.[13]

Viktor Volkonskij was the most important pioneer in popularizing general equilibrium thinking. In a book[14] published in 1968, he analysed the economy as a manyperson, strategic, non-coalitional game. Like Pugačev, but contrary to Kacenelinboigen's group, Volkonskij gave optimizing thinking basically a heuristic importance. As for going over to an optimal regime, Kacenelinboigen's stationary state, it was regarded as totally unrealistic by both Volkonskij and Pugačev.

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12 Rumjancev headed the Institute for Concrete Social Research from 1968 to late 1971. The change of the name of the institute — together with extensive personnal changes — was clearly intended to de-emphasize empirical studies. A similar change was at the same time taking place in the Academy of Sciences Institute of Economics (below, p. 152).

13 Gavrilec, Ju. (1967): O kriterii optimal'nosti ekonomičeskoj sistemy. *EMM* III:2, 186—198. As to the global objective function, Gavrilec has later stressed its status as an hypothesis. This changed position is put forward in Gavrilec, Ju. (1983a): Kriterii optimal'nosti i ravnovesnoe funkcionirovanie ekonomiki. *EMM* XIX:4, 704—715.

14 Volkonskij, V. (1967a): *Model' optimal'nogo planirovanija i vzaimosvjazi ekonomičeskikh pokazatelej*; Pugačev, V. (1968): op.cit. Pugačev argued that before solving the objective function problem, economics was not in the position to give ready-made policy recommendations, but only considered alternatives of development to be presented to "competent organs".

The equivalence of the game equilibrium and the Arrow-Debreu market equilibrium was of crucial importance to Volkonskij, as it highlighted the crucial importance of the price mechanism. In a oft-quoted sentence he wrote:

> The greatest achievement of world economic science is the strict proof of the existence of such (equilibrium — P.S.) prices under wide conditions and of the possibility of setting up a system of optimal decentralized management founded upon commodity-money or khozrascher-relations.[15]

This sentence is interesting first of all for its endorcement of a unified "world economic science" — something totally unthinkable a couple of decades before. Secondly, for Volkonskij, optimizing the economy means adopting a maximizing behaviour and developing some equilibrating mechanism to play the role that prices play in the general equilibrium mechanism. In the same way as Pugačev, Volkonskij notes the possibility of an economy-wide optimal plan, but dismisses this possibility for reasons of feasibility. Therefore, he uses game theory to give Nemčinov's ideas of a khozraschet-economy a theoretical backing. Volkonskij seems to reason that optimal functioning is basically about incentives and wages. These topics have remained central to his research interests.[16] Once more, this approach may be contrasted with the Tinbergenian ambition of Kacenelinboigen and others of deriving all the institutions of an optimal regime from the optimizing logic.

Contrary to how the sentence quoted above has been sometimes interpreted, Volkonskij is not blind to market failures. He did not want to leave investment decisions involving "large" nonconvexities to markets, and he was also conscious of the cyclical tendencies of unregulated markets. But Volkonskij did not specify the kind of combination of price and quantity guidance he had in mind. For consumption goods markets, anyway, he recommended equilibrium pricing. The injustice, uncontrollability and disincentive effects of rationing are a weightier argument than the income effects of higher prices. Income distribution, he asserted, can be regulated with other methods than disequilibrium consumption good markets,[17] such as those now in existence in the Soviet Union.

Contrary to Volkonskij and Gavrilec, Kacenelinboigen's group still clung to the idea of a unique national economic objective function. Their basic argument for it was the need for a unified viewpoint, now getting lost among all the research

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15 Volkonskij, V. (1967a): op.cit., 10.

16 For a later analysis see Volkonskij, V. (1981): *Problemy soveršenstvovanija khozjajstvennogo mekhanizma.*

17 Also see Volkonskij, V. (1967b): Ekonomiko-matematičeskie metody i teorija planirovanija i upravlenija narodnym khozjajstvom. *VE* 3, 49—57; Volkonskij, V. (1967c): Tovarno-denežnyj mekhanizm v optimal'nom upravlenii khozjajstvom i cenoobrazovanija. *EMM* III:4, 489—499.

upon the mathematical and algorithmical problems of planning on many levels.[18] This unified viewpoint was offered by systems thinking. This term of several meanings among Soviet economists, meant to Kacenelinboigen et al. seeing the socialist economy as a member of the class of consciously guided cybernetic systems. For these writers, the concept of a consciously guided cybernetic system presupposed the existence of a global objective function. The supersystem giving the goal of the economy was the society; its subsystems were the different economic agents. Economy — being the supersystem of these agents — determined their goals.[19]

Kacenelinboigen et al. wanted to deny one possible interpretation. For them, all the talk of supersystems and subsystems did not mean nondemocratic "from up to down" decision-making. What they claimed to be looking for was a balance between the existence of the global objective function — implied by the systems approach as understood by them — and the possibilities of different levels of the economy for articulating their interests. The necessity of these possibilities was implied first by the different preferences of people and second by the ignorance about the environment of the system. Thus, the multitude of preferences had to be preserved in the process of articulating interests. In the final instance, decision-making was to be responsibility of "competent organs" — as Kacenelinboigen et al. put it.

In this way, the group wanted to disclaim all possible centralist interpretations of their approach. Here, they obviously were on the defensive: the unified objective function approach was often interpreted to contain just such an implication. As will be seen below, this interpretation has often been correct.

Perhaps the most important point in the 1969 book of Kacenelinboigen and the others concerned the way in which the existence of the price mechanism was justified. The fact that pure quantity guidance is feasible was taken to prove that mere hierarchy does not imply prices. Not only quantity guidance — it is equalled to planning — but also prices exist because of the impossibility of guiding economic agents exactly, because of the existence of the local resources of these agents and because of the need to depart from behaviour envisaged by the plan. The last point has two reasons, Kacenelinboigen et al. explained: the limited resources of the planners and the stochastic nature of the economy. The plan would be given in aggregate quantities with disaggregation by horizontal agreements between agents. In this way, Kacenelinboigen et al. argue that SOFE does not see the economy as a system of automata — as critics have maintained — but does leave low-level activities their degrees of freedom. Earlier in Soviet literature, the conception of a hierarchic structure had been taken to imply forgetting about

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[18] Kacenelinboigen, A.—Lakhman, I.—Ovsienko, Ju. (1969): *Optimal'nost' i tovarno-denežnye otnošenija.*

[19] Such a systems thinking has often been prominent in CEMI publications. See, for instance, *Matematika i kibernetika v ekonomike* (1971).

all the horizontal connections and reciprocity essential to Democratic Centralism. It had been argued that this conception would therefore not be a suitable description of the socialist economy.[20]

Western interpretations have typically laid too much emphasis on the importance of Kantorovič's shadow prices as the starting point of SOFE. The examples of the general equilibrium thinking of Volkonskij and of the systems approach of Kacenelinboigen et al. show that prices were by no means always derived by enlarging programming to the national economy level.[21] Even then it certainly is true that the analyses leave much to be desired. One hardly need adopt a Marxist framework to conclude that if one were interested in the different degrees of monetarization of different economic systems, the work of Kacenelinboigen's group would be a severely handicapped guide, as the analysis was founded on an abstract model of resource allocation, not on socialist production relations. As Kacenelinboigen stressed later, the idea was to show the reasons for the existence of prices independent of the socialist or capitalist system prevailing in society.[22]

2.2. *The axioms of SOFE*

The first general account of SOFE was published in 1968 under the name of academician Fedorenko.[23] Though the principles of SOFE had been in the air for about two years already, this book is their *locus classicus*. It first describes the rapid advance of mathematical economics in the USSR. In 1958 there had been a few dozens researchers in this field in two institutes. Already in 1961 the Academy of Sciences was coordinating related work in 40 research institutes and in late 1966 in 231 institutes.[24] According to Fedorenko's figures, the Academy of Sciences scientific council "Optimal planning and management of the national economy", founded in 1967 was then coordinating the work in a total of 500 institutes. Fedorenko has been the chairman of the council since its start.

The book maintains however that scattered work on input-output, growth and industrial optimization models cannot bring in the desired results. For this to happen, work on them must be — together with the work on developing the structure and functioning of the economy — subordinated into a common frame-

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20 Evstigneeva, L.—Nikiforov, L. (1967): O kriterii optimal'nosti. *VE* 4, 107—119.

21 Compare Ellman, M. (1971): *Soviet Planning Today*, 30.

22 Katsenelinboigen, A. (1978): *Studies in Soviet Economic Planning*, Ch. 5.

23 Fedorenko, N. (1968): op.cit. This book was the result of collective work. It has been claimed that Fedorenko never writes a word in the books published under his name (see Tretyakova, A.—Birman, I. (1976): Input-output Analysis in the USSR. *SovStu* XXVIII:2, 157—186, note 22), but different claims also exist.

24 Also see O perspektivakh razrabotki teorii i metodov optimal'nogo planirovanija i funkcionirovanija narodnogo khozjajstva. *EMM* IV:1, 143. Naturally, such figures do not tell much.

work. This framework, Fedorenko indicates, could only be the creation of an optimally functioning socialist economy, as sketched by SOFE, "the most important part of the political economy of socialism". Fedorenko sees the basic idea of SOFE in approaching the socialist economy as "very complex inherently optimizable system, consisting of several subsystems and functioning in the conditions of incomplete information".[25] This is the shortest expression of the so-called axioms of SOFE, from which the properties of an optimally functioning socialist economy are to be derived.

1. For Fedorenko, the complexity of the economy implies the impossibility of completely centralized planning. The socialist economy is necessarily centrally planned, but, at the same time, its elements — households, enterprises and others — have their own resources and objectives. The primary task of the economic mechanism is to ensure the congruency of the local decisions with the global objective of the center, representing common interests and resources. For this, both price and quantity guidance are needed.
2. The economy has its inherent objective function and faces scarcity of resources. The planning problem must, therefore, be seen as an optimizing problem. The guidance of local elements must be primarily based on shadow prices connected with the optimal plan.
3. As the economy is hierarchic, the plan is formed iteratively and implemented through agreements between economic agents.
4. The importance of incomplete information was primarily seen in the need for rolling planning with plans of different horizons.

Some of the roots of SOFE are either obvious or well-known. The stress on the axiomatic approach was both a general scientific ideal and part of Tinbergenian welfare economics[26] as exemplified by Kacenelinboigen's group. It can also be connected with the tektology of Bogdanov.[27] The general optimizing approach reminds one once more of Kantorovič and also of Western neoclassical economics. Thinking on the objective function as well as the stress upon hierarchy were influenced by systems thinking. The decentralizing schemes of Dantzig-Wolfe and Kornai-Liptak were basic references in the Soviet Union, too. Nemčinov's ideas

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25 Fedorenko, N. (1968): op.cit., 16—17. These basic points of departure or axioms varied somewhat from source to source. Thus, in 1965 one of them was uncertainty (Fedorenko, N. (1965a): O razrabotke naučnykh metodov upravlenija narodnym khozjajstvom. *EMM* I:3, 313—327) but is was excluded in 1968 (*Diskussija ob optimal'nom planirovanii* (1968)). The very existence of random processes in the socialist economy was still denied by some in 1967. See Skrabin, A. (1967): Problemy optimal'nogo planirovanija narodnogo khozjajstva. *VE* 11, 62—70.

26 Tinbergen, J. (1959): The Theory of the Optimum Regime.

27 This connection is "obvious" to Susiluoto. See Susiluoto, I. (1982): *The Origins and Development of Systems Thinking in the Soviet Union*, 181.

of a khozraschet-economy and general equilibrium economics were obvious influences, too.

But it may be that there is more in the relation of SOFE and traditional political economy than meets easily the eye of a Western economist. In the justly famous 1966 discussion on optimal planning (see below, p. 114), Fedorenko had put forward his equally famous distinction between descriptive and constructive political economy. He implicitly equalled the former to the traditional Marxist-Leninist political economy of socialism, proposing that it be substituted by optimizing thinking. It should become the foundation for developing planning as well as the whole economic mechanism. Just two years later his emphasis was somewhat different. SOFE should be the core of a new, unified political economy of socialism. But on the other hand Fedorenko now explained how SOFE was firmly based on Marxism-Leninism:

> This theory leans on the Marxist-Leninist doctrine about socialism as a planned organization of the socioeconomic process, the goal of which is in securing the maximal satisfaction of the needs and well-rounded development of all the members of the society, on concretizing the Leninist principles of democratic centralism as the foundation of the functioning of socialist society, on the mutual connection of material and valuation[28] aspects of the plan of national economic development.[29]

Such pronouncements could be — and have been — dismissed as proof of the necessity of camouflaging progressive science as ideologically orthodox even in 1968. And certainly a Soviet science policy manifesto without such assertions is difficult to imagine. But even then the fact remains that Fedorenko's theme is not without some foundation. In fact, this foundation is secure enough to allow quite reasonable arguments.

As sketched in Chapter 2 above, Marxian communism was to be a Good Society creating full possibilities for human self-fulfillment. Growth of productive forces as well as development of human needs and rational needoriented planning were to be among the moments of this process. The latter two were largely pushed aside in post-Marxian classical Marxism. But the approach of rational planning, called the Neoclassical approach above, did not die within Marxism, as the examples of Strumilin (of the vintage of 1920), Bogdanov and Bukharin showed. Though this approach was strongly condemned in the Stalinist revolution, it soon re-emerged

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[28] Fedorenko here uses the term *cennost'* to refer to schadow prices, not the *stoimost'* of the labour theory of value. *Cennost'* has been in sofeist literature also used to refer to "value" in the wide sense of the word, including commodity prices as well as moral and ethical norms, juridical norms and emotions, all of which have been equalled to shadow prices. For this ultimate utilitarianism see Kacenelinboigen, A. (1970): Metodologičeskie problemy upravlenija složnymi sistemami, esp. p. 94.

[29] Fedorenko, N. (1968): op.cit., 10—11.

in Voznesenskij and Jarošenko. Stalinist PES was, as far as it had any economic content, basically Classically oriented: socialism was taken to be about accumulation.

It has been argued above that the basic message of Stalinist PES was in the interpretation that was given to the thesis of objectively existing economic laws. In a way, it amounted to denying the existence of socialist policy making: as far as existing policies were determined by economic laws, they were not subject to choice. There is a tendency, at least, that what is done is an economic law, and decision makers are mere tools of these laws. But it was also pointed out above that the thesis of objective laws could be interpreted differently, as offering yardsticks for policies. More often than not, the first interpretation would put the main emphasis on laws conceptualized upon tendencies and decisions in the past, while the latter interpretation would emphasize those laws derived from the conception of socialism as immature communism. To a large degree, this emphasis on the perspective of communism was a new feature in Post-Stalinist PES. It will be remembered that it did not figure in Ostrovitjanov's important guidelines speech of 1944 (see above, p. 65).

SOFE does share the emphasis of objective laws as yardsticks of policy perhaps even in an extreme form. The optimizing approach itself is inconceivable without policy choices and thus policy making in a real sense. As to the criteria of these choices, they were to be obtained from an image of the Good Society, the optimal regime — as defined by the economists. The differentiation of extensive and intensive growth models gave this approach — as well as other reformist thinking — superb room. Against the political background of destalinization, Nemčinovian talk of social engineering or Novožilovian identification of Marxian communism as the optimal society[30] had the flair of authentic socialism. Marx's theory of value could be used to criticize current pricing by resurrecting the discussions of the correct interpretation of "socially necessary labour-time" (compare below, p. 139). But perhaps the most important source of orthodoxy was Stalin himself. In 1951 he had given new life to the idea of the satisfaction of needs as the inherent goal of socialism. While this Basic Economic Law of Socialism was obviously only meant to assure that Soviet citizens were living in the best of all possible worlds, Fedorenko took this "law" — as had done many others — as a foundation for reformist strategy.

Fedorenko did not claim in 1968 that earlier Marxism had completely foreseen SOFE. He could only refer to the Marxian planning principle of comparing costs and "useful effects" (above, p. 23) as well as to the Lenin of NEP on khozraschet and incentives. In the same connection he denied all centralistic interpretations of optimal planning. The optimal planners did not want to create a computerized cuttlefish "entangling the whole economy". Their aim was that of "ensuring, on the basis of centralized optimal planning, the independent functioning of the

30 This was often repeated by Novožilov.

different units in the regime of realizing the principles of the optimal functioning of the economy".[31]

If the principles of SOFE were derived from studying an optimal regime, what was to be the strategy of realizing them? Fedorenko regarded going over to an optimal regime in one stroke as neither possible nor desirable. He preferred a piecemal approach. It is one of the theoretical weak spots of SOFE — perhaps even the foremost of them — that the second-best implications of this strategy have not been studied analytically in the Soviet Union, even though the critics of SOFE have long ago pointed out the utter simplicity of the models of the optimal regime, compared to the complexities of reality. This situation shows the first signs of change only now, fifteen years after SOFE was first proposed as a strategy for reforming the Soviet economy.[32]

2.3. *A blueprint for economic reform*

The theoretical unclarity surrounding the applicability of simple optimality logic to an incomplete world did not prevent CEMI from deriving a whole blueprint for economic reform from SOFE. As Michael Ellman has[33] surveyed these proposals in detail, a short sketch of the bare basics is sufficient here.

1. Plans with different horizons should be drawn up in the economy, and they should be tied together into rolling planning.
2. All plans must not be based on intuition, but on scientific calculations.
3. Planning must be an iterative process, with the lower level sending up information on its production potential and receiving shadow prices to be used in solving its own optimization problem. Profit was usually thought to be the best local criterion.
4. A country-wide network of processing and transmitting information is needed as the technical basis for planning.
5. The centre decides upon a plan in aggregated units. Disaggregation takes place in horizontal agreements concerning product mix, quality and prices within the overall frame of the plan.
6. In guiding enterprises, shadow prices derived from the optimal plan would

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31 Fedorenko, N. (1968): op.cit., 200.

32 In 1983 two CEMI researchers took a new look at the old Soviet debate on uniform vs branch-specific norms of investment efficiency. Using simple examples they showed the possible negative consequences of following the traditional CEMI proposal of uniform norm in the case of nonoptimal prices. They did not, however, advance to the general problems of second best. Sukhotin, Ju.—Petrov, A. (1983): Edinaja norma E i narodnokhozjajstvennyj podkhod k ekonomičeskoj effektivnosti. *EMM* XIX:3, 447—459.

33 Ellman, M. (1973): op.cit.

have the central position. All scarce resources should have shadow prices to be used in decision-making.

7. Developing the economic system made it necessary to widen the principles of *khozrasčet* to associations and ministries, going over to wholesale trade of means of production and giving more prominence to credit.

It must be stressed that many of these proposals were shared by others in addition to CEMI, but hardly any other reformers could claim to have derived their proposals from an economic theory. The fact that CEMI's theory, however, was actually a set of abstract theoretical principles, a strategy of efficiency thinking, did not escape its critics.

2.4. *Constructive and destructive political economy*

In 1966 the relation of sofeists to traditional political economy was surprisingly straightforward. Al'bert Vainštein — no doubt remembering his own bitter experiments from the time of the Stalinist revolution — complemented Fedorenko's distinction between descriptive and constructive political economy by saying that description is a useful activity, but that part of political economy had been plainly destructive. In the same discussion of 1966, Juri Oleinik, then a young vice-director of CEMI, saw the difference between capitalism and socialism in a memorable remark:

> From the view of mathematicians and all reasonable persons, the most important qualitative characteristic of socialist economy, differentiating it from capitalist society, is the possibility of principle of building an optimal national economy.[34]

In 1965 Pugačev denied the alleged uselessness of optimizing models in an equally memorable assertion: "Developing the socialist economic system is impossible outside of the theory of optimal economic system."[35] As late as 1969 Fedorenko and Šatalin in a joint paper criticized Novožilov's labour theory of value approach as trying to bring the theory of optimal planning together with conceptions

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[34] *Ekonomisty i matematiki za kruglym stolom* (1965), 199. One cannot help being reminded of the manifesto of the Fourierist Sociotarian School from 1841: "We are social engineers; we present our contemporaries with the plan of a new social mechanism, which in our opinion guarantees such a use of human powers that not a single part of this energy, if the system planned by us is followed, can dissolve in useless, detrimental or socially dangerous action. But we in no case want a violent overturn of the bad social mechanism now in existence." Cited in Tugan-Baranowsky, M. (1921): *Die kommunistischen Gemeinwesen der Neuzeit*, 2—3.

[35] Pro and con — compare conclusions (1965), 68.

about socialist economy preceeding it.[36] It is no wonder then that representatives of traditional political economy and planning methods were scandalized. The fast growth of the Soviet economy and the recent economic reform were among the evidence cited as proving the tenability of "the scientific principles of planning".[37] On a more ideological plane, sofeists were still accused, as they were in the early 1960's, of uncritically borrowing from bourgeois scientists, even though — as it was more than once remarked — V. I. Lenin had already shown the correct party-minded principles in this respect more than sixty years ago: valuable details may be borrowed, but not a word of general nature is to be believed. Some writers went on concretizing their arguments with references to Soviet history. Strumilin still remembered the times of NEP and the Stalinist revolution. Like at that time, there were two groups of economists again without even a common language. To Strumilin it seemed that CEMI's ideas of long-term planning were of the same origin as Groman's and Bazarov's thinking. And in the same way as Bazarov is his time, contemporary mathematical economists did not understand that scarcity is only a result of disproportions.[38] Eremin and Nikiforov, for their part, hinted that SOFE was somehow reminding them of certain earlier organization thinkers. The hint to Bogdanov was none too well hidden.[39]

Furthermore, many writers found it impossible to accept the "axiomatic-normative"[40] approach of SOFE. Eremin and Nikiforov saw it as being in contradiction to the Marxian method of advancing from the abstract to the concrete. They, like Jakov Kronrod, saw one essential difference between SOFE and political economy in the *a priori* methodology of the former. While SOFE derives the features of the optimal regime from some *a priori* axioms, the latter shows how the optimal functioning of the economy causally follows from the objective laws found by political economy.[41] Sofeists, for their part, told that they were deriving economic laws from as general a description of the economy as possible.[42]

As was shown earlier, the conception that political economy had of objective economic laws was profoundly conservative. This was seen by the sofeists, even

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[36] Fedorenko, N.—Šatalin, S. (1969): K probleme optimal'nogo planirovanija socialističeskoj ekonomiki. *VE* 6, 98—111. This is repeated in Šatalin, S. (1982): op.cit., 66—69.

[37] Bačurin, A. (1969): V. I. Lenin i sovremennye problemy planirovanija narodnogo khozjajstva. *PKh* 11, 3—18; Eremin, A.—Nikiforov, L. (1969): O teorii "konstruktivnoj" političeskoj ekonomii. *VE* 6, 112—124.

[38] Strumilin, S. (1968): O kriterii optimal'nosti. *VE* 4, 114—130.

[39] Eremin, A.—Nikiforov, L. (1969): op.cit., 116, Also see Bojarskij, A. (1971): Ešče ob optimal'nom planirovanii. *IAN* 2, 91—109.

[40] This is the term used in Šatalin, S. (1970): Nekotorye problemy teorii optimal'nogo funkcionirovanija socialističeskoj ekonomiki. *EMM* VI:6, 835—848. This article was, together with the one mentioned in note 36 above, the most important answer to criticisms.

[41] Kronrod, Ja. (1968): Ekonomičeskij optimum i nekotorye voprosy metodologii optimizacii narodnokhozjajstvennykh planov. *VE* 11, 50—62.

[42] Fedorenko, N. (1968): op.cit., 17.

though they perhaps didn't quite use this word. Šatalin, among others, paid attention to the essential fact that political economy was continually inventing new laws, but had no method of showing their correctness.[43] Juri Oleinik saw the superiority of SOFE's methodology in its ability to derive features of the economy supposed by political economists by proceeding from a few axioms. At the same time, some imagined economic laws — like that of the primary growth of the production of means of production — could be shown to be nonexistent.[44]

Behind the "objective" political economy and "constructive" SOFE lay a difference of conservative and reformist views of society. This was made plain in an exchange[45] brought about by a 1974 review by Nikolai Petrakov and others on a book by the Novosibirsk economist K. K. Val'tukh. Val'tukh defended a thesis based on the correspondence theory of truth: economic theory is true when it corresponds to reality. To Petrakov et al., this criteria — in the case of the socialist economy — might merely show a correspondence with an economic policy earlier adopted. For them, the present is not the result of some immovable laws but of policies, and they imply that no reason exists for believing that past policies would have been somehow correct in regard to present social requirements. In contradiction to Val'tukh's correspondence theory, Petrakov et al. called for Marxian revolutionary praxis: theory should be a tool in changing reality.

This constructivism of SOFE is of reformist quality. The optimal regime is thought to be possible only in socialism with social ownership of the means of production and planning. As such, SOFE contains no political strategy for bringing about the changes needed. Implicitly it relies upon the perfectability (reformability) of socialism, including the possibilities of assuring decision makers of the need for change and of implementing the reforms decided upon. These implicit presuppositions are clearly not selfevident.

No doubt, the normativeness of SOFE was also meant as a criticism of what exists. But this kind of criticism is not very strong: the present day is not criticized here for what it is, but for what it is not. Furthermore, this approach can easily turn into apology. It is a variant of immanent criticism proceeding from the own ideals of the object. Any immanent criticism is only possible if the object is thought to have a tendency toward its ideals.[46] But what if this is not true? There

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43 Šatalin, S. (1970): op.cit., 837.

44 *Diskussija...* (1968), op.cit., 118—119.

45 Petrakov, N.—Gerasimovič, V.—Kirillov, S.—Šukhov, N. (1974): Review of Val'tukh, K.: *Udovletvorenija potrebnostej obščestva i modelirovanie narodnogo khozjajstva*. *EMM* X: 5, 1038—1044. The reaction of Val'tukh is Val'tukh, K. (1976): O razrabotke teorii ekonomičeskogo optimuma. *EMM* XII:5, 954—967. Also see Val'tukh, K. (1979): Obosnotvanie planov i procedury razvitija ekonomičeskoj teorii. *EKO* 3, 33—48 where Val'tukh in fact denies the existence of theoretical concepts without empirical correspondence.

46 A basic example of this danger is probably Hegel. The problem has also been noted by the Hungarian dissident philosophers Bence and Kis, who started their activities by writing on the communist utopia: "Our deliberately neglecting to analyse our society intended

is hardly a more effective apology than claiming reality to be reformable when it is actually not. But perhaps the approach of SOFE was guided by tactical considerations: criticisms that are too pointed might well endanger the goal of enlightening further policies.

It is perhaps surprising that SOFE's ideal of axiomatic science was not polemized very much. Many commentators did see a distinct difference here from the Marxian method of social science, but, for example, the impossibility of totally formalizing economics (which the sofeists had already earlier recognized[47]) was not taken up in this light. It was more typical to complain about the small amount of SOFE's axioms and the large number of questions left out. These, however, are not deficiencies but properties of the axiomatic method.

It is not surprising that the ideal of axiomatic approach was abandoned quite early. In the basic exposition of SOFE, published in 1972, Danilov-Danil'jan claimed that this method is inapplicable to the case of a single object, like that of the Soviet economy. Thus an axiomatic SOFE would be impossible even if an axiomatic theory of consumption or an axiomatic general theory of economic systems were possible.[48]

But where did the axioms of SOFE come from? According to Fedorenko, SOFE is based on the Marxist-Leninist doctrine of socialism. Critics, on the other hand, pointed out that sofeists had taken only two laws from political economy, that of planning and that of the basic law describing the goal of the economy. (Criticisms of this kind are still heard.[49]) Paškov, a leading political economist, pointed out that the characteristics of the optimal regime actually came from mathematical planning theory. Paškov cited[50] Fedorenko:

> Mathematics has offered several types of algorithms for planning complex systems. Today the task confronting economists is to convert these algorithms into the meaningful language of economics and to find a way to evaluate which of the available algorithms is preferable, and in this manner to discover the best technique of planning.[51]

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as a covert allusion to our conviction that these societies do not live up to the socialist ideal, eventually almost turned our work into an apology of the system we meant to criticise." Bence, G.—Kis, J. (1980): On Being a Marxist: A Hungarian View, 293.

47 See, for instance, Fedorenko, N. (1968): op.cit., 200.

48 *Problemy optimal'nogo funkcionirovanija socialističeskoj ekonomiki* (1972), 230.

49 See *Osnovnoj ekonomičeskij zakon socializma* (1978), 183—188.

50 *Diskussija* ... (1968), op.cit., 102.

51 Fedorenko, N. (1966): Cena i optimal'noe planirovanie. *Kommunist* 8, 84—93, cited on p. 87. This part of the discussions around SOFE is analysed in the dissertation of Voegele. See Voegele, A. (1980): *Zu der Begründung einer sozialistischen Ökonomie in der Theorie eines Optimal Funktionierenden Ökonomischen Systems und der Ökonomischen Theorie des Sozialismus.*

The algorithms of, say, Dantzig and Wolfe have been often criticized for not describing real planning processes. SOFE took the contrary path: it was criticizing reality for not corresponding to planning algorithms. This, it should be stressed, was not an accidental remark by Fedorenko, but central to the original approach of SOFE. In 1970 Kacenelinboigen once more stressed the cognitive role of planning algorithms in reforming the economy.[52]

Paškov criticized Fedorenko for making a fetish of mathematics. In this he was not alone; Jakov Gerčuk shared the same opinion. He was also alarmed by the hegemony taken by linear models.[53] In criticizing Volkonskij's book, another veteran of mathematical economics, A. L. Lur'e, pointed out the importance of nonconvexities and also reminded others of the incorrectness of equating equilibrium with optimum.[54] The criticisms of Nikolai Petrakov — a vice-director of CEMI — were directed against the Tinbergenian approach of Kacenelinboigen's group.[55]

Perhaps the most thorough argumentation was that by R. G. Karagedov, the Novosibirsk advocate of Hungarian-type economic reform. He saw general equilibrium theory as being so abstract a description of the economy that its corollaries could not be guidelines in reforming the economy.[56] Academician Khačaturov dis-

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52 In discussing the role of mathematics in different branches of science, Kacenelinboigen makes several conclusions well worth quoting: "The use of mathematics in economic research has shown that here the most important role is played by the use of mathematics as an instrument of management: the interpretation of algorithms gives the method (metodiku — P.S.) of the system's functioning. Such a use of mathematics in economic research has a most important methodological value. It shows that in the margin it is possible to go over into creating the deductive theory of the optimal functioning of (complex — P.S.) systems, based upon their strict mathematical analysis." Kacenelinboigen, A. (1970): op.cit., 93.

53 Gerčuk, Ja. (1965): *Granicy primenenija linejnogo programmirovanija*; Gerčuk, Ja. (1969): K voprosu o primenenii ekonomiko-matematičeskikh metodov na praktike. *VE* 4, 105—115.

54 Lur'e, A. (1970): Review of Volkonskij, V. (1967a). *EMM* VI: 1, 151—154. To quote the dictum of Frank Hahn, "of course there is no reason to suppose that any equilibrium of whatever sort is socially optimal" (see *Economic Journal* XCI (1981):4, 1038).

55 Petrakov, N. (1971a): *Nekotorye voprosy upravlenija socialističeskoj ekonomikoj.*

56 Karagedov, R. (1970a): *Rentabel'nost' i ekonomičeskij optimum (kritičeskij obzor nemarksistkoj literatury)*; Karagedov, R. (1970b): K voprosy o sootnošenij kategorii ekonomičeskoj effektivnosti i rentabel'nosti. *Izvestija Sibirskogo otdelenija Akademii Nauk SSSR: Serija obščestvennykh nauk* 1970:1:1, 104—115. Volkonskij's answer is in Volkonskij, V. (1973): *Principy optimal'nogo planirovanija*, 21—22. — In Western literature, Edward Ames and Benjamin Ward noted the abstractness and "ivory tower" mentality of the optimal planning school and stressed its negative consequences for the ability to make policy proposals. Hardt, J. et al. (1967): *Mathematics and Computers in Soviet Economic Planning*, 149, 246.

approved of the sofeists going over from simple models to reality too rapidly.[57] V. V. Novožilov pointed out a need for a historical approach and argued for a transition from "technoeconomic quantitative optimizing" to a "qualitative" reform of production relations.[58] Some critics liked to point out the difference between Fedorenko's "abstractness" and Novožilov's "concreteness".[59] Furthermore, some writers have seen an important difference between the approaches of CEMI and Akademgorodok.[60] It is also worth noting that even later some mathematicians have joined the choir accusing mathematical economists of a lack of concreteness.[61]

Among the axioms of SOFE, that of setting the maximization of social utility as the goal of the economy raised the most objections, though some political economists, notably A. M. Rumjancev, were quick in giving CEMI their support in this respect (below, Chapter 4). In spite of all the sofeists' references to Marx and Engels, most political economists in the 1960's could not accept the utility approach. Its time in PES became later. On the other hand, when later theoretical developments were drawing many sofeists away from the idea of a unified utility function, there were critics like Val'tukh seeing this as a departure from the correct theoretical principles.[62] Other axioms of SOFE, like that of hierarchy and scarcity, were also continuously criticized.[63]

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57 *Diskussija* ... (1968): op.cit., 64.

58 Novožilov, V. (1972): *Problemy izmerenija zatrat i rezul'tatov pri optimal'nom planirovanii*, 383—429; Novožilov, V.—Gdalevič, S. (1969): Khozrasčetnaja sistema planirovanija.

59 See, for instance, Eremin, A.—Nikiforov, L. (1969): op.cit.

60 Thus in 1982 two conservative Leningrad political economists contrasted Volkonskij's 1967 book disapprovingly with the planning model of Aganbegjan and Bagrinovskij, which is partly price partly quantity directed. The latter, they think, is better from the political economy point of view, because, "As is well known, the tasks of Marxist economist-mathematicians is to model processes of centralized planning and management, finding and substantiating the national economic optimum using all those tools that are in the hands of the socialist state". Moiseenko, N.—Popov, M. (1982): *Matematika v političeskoj ekonomii*, 16. Moiseenko is the dean of the economic faculty of Leningrad State University.

61 See, for instance, Pontrjagin, L. (1980): O matematike i kačestve ee prepodavanija. *Kommunist* 14, 99—112. All too often, according to Pontrjagin, studies in mathematical economics are incomprehensible or useless to economists and valueless to mathematicians.

62 For Val'tukh any adequate model of the socialist economy must have an explicit objective function. He regards Petrakov's approach as outright unmarxist. See Val'tukh, K. (1974): Ot redaktora.

63 The most voluminous critic of the scarcity approach has been A. I. Kac. See Kac, A. (1970): *Dinamičeskoj ekonomičeskij optimum (obščie kriterii)*.

This short list of specific criticisms directed towards SOFE shows the utmost heterogeneity of the dissenting views. Some of the criticisms — like those of Petrakov and Novožilov — are part of the internal process of development of SOFE, while others share a basic hostility to this mode of thinking. Later, as will be seen in the next chapter, the positions of different writers drifted perhaps even further from one another. This was to have its reasons.

That the economic laws of PES can only be understood as statements of aims is a recurrent theme in Western literature.[64] The analysis in the previous chapters has sought to show that this interpretation is one-sided: the intention of asserting that these aims have also come true in the USSR was the central original preoccupation of PES. The normative emphasis is of later origins. The "axiomatic-normative" approach of SOFE is perhaps the most extreme form of normativeness that has occurred in Soviet economic thought. In conclusion to this chapter, one should perhaps discuss the reasons for this. Why SOFE and not, for example, some Soviet equivalent of the critical study of socialist institutions Kornai and others have pursued in Hungary?

Just phrasing the question goes some way in answering it. Soviet economists have not enjoyed the possibilities of critical empirical research available in most other countries. The unavailability of statistics, so recurrently complained about, together with the existing ideological and political climate have not prevented all highly relevant research, but they certainly are a primary factor in explaining the forms Soviet economics has taken.

Furthermore, even if the road to a positive theory of really existing socialism had been open in the Soviet Union, it would have been a long one. It could not have promised those immediate benefits with little costs that Khrushchevian science policy required. The Kantorovič approach — as well as neoclassical equilibrium and welfare theory — seemed to have this normative potential. Finally, a normative approach was present in Soviet ideology, and this thrust was very much strengthened by the 22nd Congress of CPSU. In fact it might be argued that Russian and Soviet thinking has often shared a kind of messianism, an urge to bring about a perfect society (and man) more or less in a single stroke. It is perhaps none too farfetched to see SOFE as one instance of such an approach, insistently pushing aside all the problems of second-best strategies in a world so obviously less than perfect.

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64 See, for instance, Dyker, D. (1983): *The Process of Investment in the Soviet Union*, 100, citing Berliner.

3. DEVELOPMENTS AND RESTATEMENTS

3.1. *Changing tides*

On a practical level, the work of mathematical economists seemed to be bearing fruit in the late 1960's. The use of economico-mathematical methods was increasing notably. The five-year plan for 1971—1975 was the first one to have its consistency checked with input-output and production functions. Šatalin, one of the spokesmen of CEMI, declared in 1971 that using optimization models at the industry level gave an increase of 10—20 percent in production. Fedorenko claimed in 1974 that models developed by CEMI alone had saved "hundreds of millions of rubles" for the national economy.[1] The decisions of the 1971 CPSU congress gave the green light to a fast increase in computer production, to the creation of automated information systems and to the wide use of mathematical methods at the different levels of the economy.

Problems, however, were looming behind this facade of undeniable success. It was often pointed out that research in the field was unsystematic and uncoordinated. Having no unified methodological framework it actually only became an appendix of traditional planning methods, a compensation for the economic reform that had miscarried, not a part of the road towards an optimal socialist economy as had been proposed in SOFE. CEMI was for a unified conception of implementing mathematical methods and — at the same time — reforming the economy. It was also for closer cooperation between the researchers and economic practice and for creating material incentives for implementing the new methods. Things were seen to go astray, but the fault was squarely laid at the others' doors.

The decisions to create automated planning and management systems not as a part of reform but as a substitute for it must be seen against the current Soviet political background. The Czechoslovak crisis and the domestic upsurge in dissident activities led to a tightening of the reins. At the same time, and partly for the

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[1] Šatalin, S. (1971): Ekonomiko-mathematičeskie metody v planirovanii i upravlenii. *VE* 7, 15—24; Fedorenko, N. (1974a): O sozdanii i razvitii sovetskoj ekonomiko-matematičeskoj nauki. *EMM* X:3, 419—431. Naturally, all the figures cited must be more or less arbitrary. A textbook on industrial and enterprise models was published as early as 1973. See *Matematičeskie metody v planirovanii otrasl i predprijatii* (1973).

same reasons, the decisions of 1965 were quickly becoming "the reform that never was". The idea of an association reform had long had the support of CEMI, but what finally happened starting in 1973 was to be just a small modernization of the existing system, not a step in the creation of a khozraschet-economy.[2] Within the academic establishment, the control of party organs was strengthened, and 1973—1974 saw a "major crackdown in Establishment social science ... including large-scale personnel changes, new watchdog commissions and regulations, and a decisive change in the content of published theoretical discussions".[3] CEMI was naturally also affected.

The tides changing are clearly to be seen in the 1970 general account of the views of CEMI.[4] Just a year earlier Fedorenko and Šatalin had still launched a sweeping criticism of traditional political economy (above, p. 114), but then on the 100th anniversary of Lenin the well-known — though once a maverick (above, p. 77) — political economist L. A. Leont'ev supplied a first chapter of the purest orthodoxy to the book edited by Fedorenko, Bunič and Šatalin. Some other articles in the volume were also sprinkled with references to the grandiose traditions of Soviet economic science. It is perhaps symptomatic that Šatalin laid stress on input-output as the most important method in raising the level of central planning. Input-output was the special field of Šatalin, but often in the 1960's this alternative had been seen as more centralistic — even if much better developed, too — than using optimizing technique with their shadow prices.[5]

During these years a major consensus was reached on the future directions of modelling. Mathematical economics should go over from partial to global models, from static to dynamic models, from deterministic to stochastic models and from techno-economic to socio-economic models.[6] Many reasons were given for these changes of emphasis, but the main fact seems to be that earlier simple models had

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2 Höhmann, H.-C.—Kaser, M.—Thalheim, K. et al (1975): *The New Economic Systems of Eastern Europe.*

3 Breslauer, G. (1982): *Khrushchev and Brezhnev as Leaders*, 264. For the case of philosophy, see Hahn, W. (1982): *Postwar Soviet Politics*, 173—181. For sociology, see Matthews, M. (1978): Introduction.

4 Fedorenko, N.—Bunitsch, P.—Schatalin, S. (1970): *Effektivität in der sozialistischen Wirtschaft.*

5 In Šatalin's main book on input-output, he has to stress that this method is not contrary to SOFE. See Šatalin, S. (1968): *Proporcional'nost' obščestvennogo proizvodsta.* Also see Katsenelinboigen, A. (1980): *Soviet Economic Thought and Political Power in the USSR*, 145. This perceived contradiction was presumably not only founded on the "nonoptimizing" nature of input-output, but also its informationally centralizing potential, as compared to the potentially decentralizing shadow prices of optimization methods.

6 This was the main theme of the first conference on optimal planning and management in 1972. See Pervaja konferencija po optimal'nomu planirovaniju i upravleniju narodnym khozjajstvom (1972). *EMM* VIII:3, 456—464; Fedorenko, N. (1972): O razrabotke sistemy optimal'nogo funkcionirovanija socialističeskoj ekonomiki. *VE* 6, 94—707.

proved incapable of handling the now topical problems of technical progress, ecology and consumption. These changes further strengthened the belief that it was impossible to use a single model to capture all the essential questions of reproduction. This approach had already been criticized not only on grounds of scale, but also on those of defining an objective function, of being able to use different kinds of constraints conditional upon scales, time-horizons and localities, and generally of giving a fuller picture of the multi-centered structure of the socialist economy. At the same time, as problems of the objective function were given more and more attention, the heuristic value of traditional optimizing techniques was emphasized ever more.[7] In practice, however, the work on the large, multi-staged planning models already started in the mid-1960's continued much as before, as these models were deemed essential for developing automated information systems. This chapter traces the main developments in the work of CEMI in the 1970's on the economic mechanism, on planning models and on planning methodology. The main debates around CEMI are also to be covered.

3.2. *Petrakov on the economic mechanism*

Nikolai Petrakov, who had earlier worked with V. V. Novožilov, became the vice-director of CEMI responsible for the work on the economic mechanism in 1969, at the age of 32. Petrakov was a specialist in pricing. He had a systems-thinking world view and a well-developed flair for debate.[8] In the 1970's his contribution to the views of CEMI on the economic reform was crucial. At the same time, his have been among the most controversial statements in Soviet economics.

As sketched above, the theoretical analysis behind SOFE had advanced through the hierarchical systems thinking of Kacenelinboigen et al. to the general equilibrium analysis of Volkonskij. Now Petrakov, basing his views on his brand of systems thinking, reached beyond general equilibrium analysis. It is, he wrote, not the basic paradigm of economics, but just one way of studying the market equilibrium.[9] The criticisms of Petrakov are, in the first place, directed against Kacenelinboigen et al. Where they had gone astray, he asserted, was in mixing up the properties of models with the properties of economic reality. This is especially shown in the discussions on the global objective function. Petrakov tries cautiously to distance himself from the normal Soviet way of talking of the goal of the economy as an objective law, independent of the consciousness of economic agents.[10] For Petrakov,

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[7] Volkonskij, V. (1973): *Principy optimal'nogo planirovanija.*

[8] Petrakov, N. (1966): *Nekotorye aspekty diskussii ob ekonomičeskikh metodov khozjajstvovanija* is a lucid survey of economic reform debates.

[9] Petrakov, N. (1971a): *Nekotorye voprosy upravlenija socialističeskoj ekonomikoj*; Petrakov, N. (1971b): *Khozjajstvennaja reforma: plan i ekonomičeskaja samostojatel'nost'.*

[10] For a survey see Gavrilec, Ju. (1979): Izmerenie poleznosti i koncepcija optimal'nosti. *EMM* XV:3, 582—596.

goals always belong to the consciousness of different agents: they are set by them. Furthermore, it is up to the researcher to formulate the goal in a given model. In this sense, the goal cannot be objectively given. Goalsetting, however, cannot be arbitrary. In a cumbersome remark Petrakov asserts that "... in setting out the axioms of planning and managing complex socio-economic systems — socialist society is the foremost example of them — the postulate of the existence of optimality criterion of the system must be complemented with a postulate of the finite indeterminateness of this criterion and of the objective inevitability of the existence of a mechanism for defining, specifying and correcting the criterion in the functioning process of the system".[11] In practice this mean that the existence of a mechanism for the articulation of different interests is foremost. To back up this idea, Petrakov refers to the well-known political economists Rumjancev and Paškov — and to Bogdanov's *Tektologija.*

These ideas of Petrakov were put forward also as criticisms of the 1966 book of Kacenelinboigen et al. (above, p. 92). By 1969 this group had already clearly changed its conception of the objective function, too. In a 1969 book Kacenelinboigen et al. argued that a unique global objective was impossible in conditions of incomplete information, limited capacities of information processing and with existing differences in human preferences. Therefore, a multitude of criteria existed, and "a mechanism of forming, selecting and changing the criterion is necessary ... and, at the same time, conditions for forming other conceptions of the criterion must be preserved".[12] Kacenelinboigen et al. of 1969 explicitly contrasted these ideas with their own in 1966. Thus, no essential difference of approach actually existed between them and Petrakov at this later date. Petrakov's presentation, however, was less abstract and more socially oriented.

Petrakov proceeds to analyse the conditions for the functioning of interest articulation mechanisms in society. The ability to generate new information is seen as being of central importance here. This happens — as an example of schools of science (already used by Kacenelinboigen in a 1970 article) — illustrates, as different collectives make contact with each other. Therefore, it is possible to breed information and to articulate people's interests only if people are able to participate in groups organized around different principles. Thus, Petrakov ends his analysis of the possibilities for interest articulation with a call for pluralism, a term which he does not avoid using, though its relation to the Marxist-Leninist view of democratic centralism as the organizing principle — and even more, as the real practice — of socialism is an open question, to say the least. The overall thrust of Petrakov's analysis comes out clear: not only Scientific and Technical Revolution (cf. the

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11 Petrakov, N. (1971a): op.cit., 38.

12 Kacenelinboigen, A.—Lakhman, I.—Ovsienko, Ju. (1969): *Optimal'nost' i tovarno-denežnye otnošenija*, 24; Kacenelinboigen, A. (1970): Metodologičeskie problemy upravlenija složnymi sistemami.

science example) but also planning and managing the society in general are not, in the first place, questions of planning algorithms but questions of social relations.

Petrakov does not go so far as to deny the existence of global interests, but his analysis of the possible reasons for incongruency between global and local interests offers some interesting perspectives. Petrakov lists a total of six possible reasons for this: 1) a mistaken selection or intensity of guidance signals, 2) a mistaken specification of the global objective, 3) breaking of the principle of hierarchy by invading another agent's legitimate area, 4) a mistaken specification of changes in the system, 5) incomplete information and 6) problems in generating new information.[13] The second reason given is especially intriguing: Petrakov simply asserts that selecting an incorrect line of policies is a general possibility in socialism with an improperly functioning system of interest articulation. This is, as was seen above (p. 116), the reason for Petrakov's defense of a practical Marxism against the "contemplative" Marxism of K. K. Val'tukh.

Many versions of SOFE, especially in the 1960's, had used the revealed preference principle to argue the existence of the global objective function: the existence of different development possibilities was taken to imply that the planners, being rational, had a scale of preferences. From the previous perspective, it was natural that when Petrakov published a revised version of his book of 1971 in 1974, he had added a criticism of this approach.[14] The fact of the existence of different plan variants only "speaks of" but does not prove that the center has formed its preferences. Anyway, he points out, if such an function does exist, it has been defined over past development possibilities and cannot be used as the guide for future policies. Stressing the importance of badly-defined ecological and cultural factors as well as of general uncertainty, Petrakov finally concludes that social decisions are actually made as an informal selection within an "area of compromise", delimited by the interests of different societal groups as well as by certain national economic constraints. Petrakov implies that rational decision making should thus not be mixed up with maximization.

Petrakov's plea for pluralism hardly adds anything to interest groups theories, but it certainly is notable coming from a Soviet scholar. An emphasis on articulating divergent social interests and on compromises is decidedly far from the standard Soviet concept of socialist decision making. Furthermore, the points made by Petrakov (and in a less developed form by Kacenelinboigen et al. even earlier) are a departure from the theories of early SOFE. In 1967 Janos Kornai had sketched a critique of the work of Kacenelinboigen's group parallel to that of Petrakov,

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13 Kacenelinboigen, A.—Lakhman, I.—Ovsienko, Ju. (1979): op.cit., 43.

14 Petrakov, N. (1974b): *Kibernetičeskie problemy upravlenija ekonomikoj.* The revisions included leaving the reference to Bogdanov away. The last of Petrakov's books so far published is a popularized version of the 1974 book: Petrakov, N. (1975): *Upravlenie khozjajstvennymi sistemami.*

though more narrowly technical.[15] Later, Aron Kacenelinboigen emphasized even more the conventionalist element he now saw in theory formation.[16] Finally, the first textbook of SOFE, published in 1980 and edited by Šatalin, includes the idea of an area of compromises. Here its existence is not argued by a pluralistic articulation of interests (as in Petrakov) but by difficulties in distinguishing social constraints and goals (very much like in Kornai of 1967).[17]

Basically, Petrakov's point was to distinguish between "purely engineering" and "economic" approaches. He argued that the traditional chain of "goal — constraints — optimal plan — mechanism for implementing the plan" decisively clouds our view of the way in which the economic mechanism works. In an important 1976 article Petrakov[18] sees the specificity of the economic approach largely in the indeterminacy of its object. This indeterminacy is caused by endogenous objective formation, by hiding of information because of interest conflicts, by the stochastic nature of creating new information — all reasons behind incomplete information. Petrakov concludes that traditional optimizing models are, therefore, a poor tool in describing the economy. Leaving aside all properties of self-correction and self-guiding, they unite the plan and its implementation mechanism in a mechanical way. In this, he points out, they are reminiscent of the old antithesis "plan or markets". In these models, Petrakov concludes, the fundamental questions of creative activity, incentives and interest articulation are just "architectural additions". In his perspective, they should have the central position in social analysis.

For an institute like CEMI, these cannot be points of only philosophical interest. Far from abandoning the use of mathematical methods, Petrakov has been an advocate of stochastic methods and simulation. They have both been rapidly advancing fields of research. Especially simulation modelling — a term used for a wide variety of flexible man-machine systems often incorporating both econometric and optimizing models with expert evaluation — is the real Soviet economists' fad in the early 1980's. The first allunion symposium in the field was held in 1973, the second in 1976, and a bibliography published in 1978 already listed more than a hundred publications.[19] The first symposium held in the new building of CEMI in 1981 was about simulation, and work in the field is done in two departments, one headed by the former Novosibirsk economist Kirill Bagrinovskij and the other by Juri Leibkind.

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15 Kornai, J. (1975): *Mathematical Planning of Structural Decisions*, 417—422.

16 Compare Kacenelinboigen, A.—Movšovič, S.—Ovsienko, Ju. (1972): *Vosproizvodstvo i ekonomičeskij optimum* and Katsenelinboigen, A. (1973): On the Various Ways of Describing the Socialist Economy. *MATEKON* X:2, 3—25.

17 *Optimizacija funkcionirovanija socialističeskoj ekonomiki* (1980). Among the writers of the book are Movšovič and Ovsienko of CEMI.

18 Petrakov, N. (1976): Mekhanizm funkcionirovanija socialističeskoj ekonomiki i problema narodnokhozjajstvennogo kriterija optimal'nosti. *EMM* XII:5, 941—953. For parallel views, see Sukhotin, Ju. (1975): *O khozjajstvennykh formakh planomernogo upravlenija.*

19 See *Imitacionnoe modelirovanie ekonomičeskikh sistem* (1978), 107—109.

Theoretical considerations like those of Petrakov (and of Maiminas, below, p. 135) are one reason for the fast spread of simulation modelling. Advances in available computing hardware are another, and the experiences of mammothlike traditional models (below) are a third one. One more reason is the pedagogical value of man-machine-systems in institutions like the Academy of National Economy, where they are used for, e.g., tracing the effects of different economic mechanisms upon enterprise performance.

Petrakov's thinking and energy has had a lasting influence on CEMI, but outside it he has met with heavy criticisms. In 1971 Boris Stukalin, then the head of the State Committee on Publishing and since 1982 the head of the Central Committee Department for Propaganda selected an article by Petrakov published in *Novyi Mir* as an example of economic literature not always fulfilling the demands made by the XXIV Party Congress and sometimes having "serious methodological mistakes as well as incorrect handling of certain political-economic problems".[20] Stukalin did not tell which mistakes he meant, but soon two prominent economists from the Central Committee Academy of Social Sciences told what everybody already knew. A cybernetic approach like that of Petrakov, emphasizing the influence of market feedback on production meant setting proportions of social production dependent upon the vagaries of market demand and was absolutely out of date by 1971.[21] The time belonged to automated management systems, not to the equilibrium pricing much emphasized by Petrakov. As will be seen below, these attacks upon Petrakov lasted for several years.

3.3. *Systems of planning models*

In early 1970's CEMI published two different systems of models to serve the needs of long-term planning and automated information and management systems, both then in the phase of intense preparation.[22] The more ambitious of these systems is that of Baranov, Danilov-Danil'jan and Zavelskij, started back in 1968. The phase that it had reached by 1970—71 was finally published in book form in 1975.[23] In the early 1970's this system of models was the proudest achievement

[20] B. Stukalin, *Pravda* 10. 11. 1971, p. 3.

[21] Valovoi, D.—Lapšina, G. (1972): *Socializm i tovarnye otnošenija*, 107—109.

[22] For an introduction and for translations of some basic articles see *New Directions in Soviet Economics* (1982), 105—173.

[23] Danilov-Danil'jan, V.—Zavelskij, M. (1975a): *Sistema optimal'nogo perspektivnogo planirovanija narodnogo khozjajstva.* For a short review of the philosophy of the project, see Danilov-Danil'jan, V.—Zavelskij, M. (1975b): Social'no-ekonomičeskij optimum i territorial'nye problemy narodnokhozjajstvennogo planirovanija. *EMM* XI:3, 547—563. For a short survey see Cave. M. (1980): *Computers and Economic Planning.* The corresponding proposal of the Novosibirsk economists is Aganbegjan, A.—Bagrinovskij, K.—Granberg, A. (1972): *Sistema modelej narodnokhozjajstvennogo planirovanija.*

of CEMI. It had a prominent place in the presentations of the work of the institute then published in English.[24]

The project of Baranov and others was meant to reach farther than the limits of the economy, though it did admit the existence of limits to formalization. The system had three levels: the centre (representing the national economic interests), associations or industries, and regions. The basic goal was to unite branch and regional approaches. There was no *a priori* objective function. The overall optimum was reached in the system of models by iteration between the centre and regional population groups. The regional aspect thus had a pronounced status. Minimizing regional differences was to be an important objective, and migration flows were used as one feedback mechanism.

The absence of a single global objective — a feature distinguishing this work from, for instance, that of Pugačev or Kacenelinboigen's group — was said to be inspired by games theory and to be philosophically founded upon Nemčinov's ideas of a khozraschet-economy. The system of models existed in two variants. In the first version branch plans were the starting point. They were first coordinated at the national level, and then the regional plans — consisting of selections made by regions among the proposals of the branches — came to the iteration. Shadow prices were to have the central place in the iterations. In the second version it was the regions that had the first selection of investment plans, with branches following.

This project had a deep influence upon CEMI's further work. Preliminary experiments showed the feasibility of the approach, but the forbidding informational and computing requirements of the system finally made its importance mostly academic. This utopian construct — as it was called — was fiercely criticized by planners (below, p. 145). By 1975 a severely cut experimental model was realized. The system was aggregated from the enterprise level to 98 separate products, the iteration procedure was simplified, the branch objective function was changed into a quadratic, a new system of models for the transport complex was substituted for the former model and the dimension of social problems was simplified to just migration. At the same time, aggregation made the use of shadow prices in coordination less feasible by increasing the number of zero shadow prices.

Furthermore, the system of models was seen to face certain bottlenecks. One of them was still the informational requirements: even the experimental version needed specially collected data. It also had too many exogenous parameters, incorporated an unrealistic formulation of objectives and neglected the regional allocational aspect by concentrating upon the social aspects of regions to too large a degree.

These problems are meant to be corrected in the new version of this system of models, developed under Baranov — now the only one of the original leaders

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[24] Fedorenko, N. (1974b): *Optimal Functioning System for a Socialist Economy; Economic Development and Perspective Planning* (1975).

of the project still in CEMI — as Project SMOTR since 1980.[25] SMOTR is CEMI's proposal for the models to be used in the next phase of the Automated System of Planning Calculations (ASPR), which is planned to be ready by the mid 1980's. The principal scheme of SMOTR has been incorporated into the draft project of the coming second phase of ASPR, and some of its blocks are being experimented with at Gosplan.

SMOTR should connect much work both within CEMI and outside of it into one frame. It has six functional blocks (population and labour power, incomes and consumption, unproductive activities, finance, international ties and natural resources) and a structure of three levels (macro in 18 branches; macro in 260 products; branches, multibranch economic complexes and regions) with separate blocks for regional models, transport, supply and construction. Input-output models are to be the backbone of the system, and contrary to earlier version, iteration is to be started with the setting of objectives of the highest level.

SMOTR is huge, but it is said to be developed with maximum attention to existing information and modelling technology. The basic input-output models are those used in ASPR. SMOTR shall also include econometric models as well as optimizing models. Much of the objectives are either given exogenously or calculated heuristically. Reflecting the experiences of the earlier versions, heuristic methods — not shadow prices — are also of central importance in the iterations between different blocks. The model of the centre uses the degree of attaining the regional socioeconomic models as the optimality criterion. The regional models are weighted together by using either the difference between attained and normative national goals or regionally attained goals and nationally average goal performance as weights.

A new emphasis upon heuristic methods as well as a "from up to down" procedure are important features of Project SMOTR. The second CEMI project of planning models, lead by V. F. Pugačev, has met with less changes. Compared to the project of Baranov et al., this project, also started back in the 1960's, is modest and more practicable. Already in 1973—1974 it was used in preparing the 1976—1990 perspective plan.

Pugačev's system is a three-level optimizing model of material production. It is — so far at least — static with a linear objective function and with almost no regional aspects. The lowest level consists of about a hundred branches, the intermediate level has ten interbranch complexes and the highest level maximizes material output with a given mix.[26] The model uses approximative iteration (also

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[25] Baranov, E. (1981): O metodičeskikh voprosakh postroenija sistemy modelej soglasovanija otraslevykh i territorial'nykh planovykh rešenii. *EMM* XVII:5, 873—889; *Sistema modelej narodnokhozjajstvennogo planirovanija* (1982). The basic reference on ASPR is *Avtomatizirovannaja sistema planovykh rasčetov* (1980).

[26] *Sistema modelej optimal'nogo planirovanija* (1975); Pugačev, V. (1981): Mnogostupenčataja sistema optimizacii planirovanija: rezul'tati i perspektivy. *EMM* XVII:5, 863—872.

to be used in SMOTR), and perhaps its most important result has been in unifying branch optimizing models. Some of its results have been incorporated into official planning methodology, but, on the other hand, Pugačev has complained that existing institutional conditions still slow down the use of branch optimizing models minimizing costs. Both administrative and economic sanctions have been proposed for remedying the situation.[27]

The existence of competitive projects has been typical of Fedorenko's science policy within CEMI. Nationally, the same could be said of the models of CEMI and Novosibirsk and others. Plans have been presented for unifying all the different models into one framework.[28] SMOTR is a step in this direction. But as Soviet models have different approaches and degrees of readiness, the most that can realistically be expected is a joint complementary use of models, including use of information generated in other models. Probably, an important element in the proposals for a common framework is the need to demonstrate the existence of a common approach to planning, which was much called for especially in the early 1970's.

It is obvious that the Automated System of Planning Calculations cannot at the present support a system of planning models.[29] Leading Gosplan officials estimate that perhaps ten per cent of all the tasks of the ASPR *centre* could perceivably be solved with mathematical methods. Even to achieve this, existing models should be heavily changed to correspond to ASPR.[30] Furthermore, Urinson et al. assert that ASPR can be based on a combined use of models and direct calculations, but never upon interconnected models. Heuristic methods, they stress, should have the central role, especially in connecting different models. (As seen above, this is a requirement fulfilled by SMOTR, and also traditionally by Novosibirsk models.)

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[27] Pugačev, V. (1981): op.cit., 837. Back in 1968 Aganbegjan proposed making optimizing calculations obligatory. This proposal was repeated by Fedorenko in 1978 (Fedorenko, N. (1978b): Instrumenty optimizacii planovykh rešenii. *Kommunist* 6, 31—42). Fedorenko also told that the share of optimizing calculations in the economic use of computers was in the decline. He once more repeated the proposal of making such calculations obligatory in 1982.

[28] Fedorenko, N. (1979a): *Nekotorye voprosy teorii i praktiki planirovanija i upravlenija*, 157—162. Also see *Sistema modelej* ... (1982), op.cit. which surveys all the major modelling efforts — especially in CEMI but also in other institutes — and concludes that "the systems (of models — P.S.) complement one another and may in the future become parts of a single system of models of the national economic plan ...".

[29] It was announced in 1974 that collecting information for a branch optimizing model often took 2—3 years, collecting information for a *raion* input-output model took more than two years and for "more complex models" about five years. See *Kompleksnoe narodno-khozjajstvennoe planirovanie* (1974), 172. A former Ukrainian planning economist concludes that ASPR is "a typical example of a highly ineffective large-scale Soviet project". See Kushnirsky, F. (1982): *Soviet Economic Planning, 1965—1980*, 119—126. On information systems more generally see Cave, (1980): op.cit.

[30] Urinson, Ja.—Klocvog, F.—Macnev, D. (1981): Ekonomiko-matematičeskie modeli v ASPR i problema ikh kompleksirovanija. *EMM* XVII:5, 847—862.

Presumably, this requirement is founded not only upon considerations of feasibility, but also on a willingness to secure an active role for planners in manipulating the outcomes of models.

The general conclusion reached by the Gosplan planners is that neither the CEMI nor the Novosibirsk system of models can be *the* backbone of ASPR. The basic source on ASPR puts the matter somewhat differently from the authors cited above. The main conclusion, however, is basically the same:

> But each one of those proposed systems of models has its advantages and drawbacks and solves a limited number of problems. Therefore, they cannot be regarded as alternative variants of the ASPR system of models... But certain elements, approaches and methods used in these systems of models may and must be used in developing the ASPR system of models.[31]

Thus, the systems of models developed in the 1960's and 1970's have not had — nor will have — the role of reforming the planning system their implementation was dreamed to have. This may be regarded as the Soviet version of the generalization made by the Hungarian Maria Augustinovics: models will improve planning techniques, but will never do the whole job.[32] Gosplan sources put it somewhat differently: ASPR (of which mathematical methods are only a small part) is not a new approach to be substituted for the existing planning system. It is structurally, logically and methodically based on the traditional Gosplan planning system. Introducing the first (in 1978) and the second (much delayed, now planned to take place in about 1985) phases of ASPR simply means putting planning on a "modern scientifical-technical basis", as the source just cited puts it.[33]

The model systems described above are tools of medium-term and long-term planning. Much work has also been done in the development of growth models, dynamic input-output and production functions for long-term planning. In CEMI this work was first lead by A. I. Ančiškin, a corresponding member of the Academy, and after his departure for Gosplan in 1981 by Juri Jaremenko, a vice-director of the institute.[34] CEMI did have a central role in drawing up the first perspective plan (or prognosis) for 1976—1990, though the use of mathematical methods was

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31 *Avtomatizirovannaja*... (1980), op.cit., 159.

32 See Augustinovics, M. (1975): Integration of Mathematical and Traditional Methods of Planning.

33 Two reasons were recently given by the vice-director of the Main Computer Centre of Gosplan for the fact that most tasks solved in ASPR are not interconnected: modelling ASPR on the needs of the separate departments of Gosplan and deficiencies in domestic computer production. Bezrukov, V. (1983): Razvitie avtomatizirovannoj sistemy planovykh rasčetov. *PKh* 5, 65—73.

34 Anchishkin, A. (1977): *The Theory of Growth of a Socialist Economy*; Jaremenko, Ju. (1981): *Strukturalʼnye izmenenie v socialističeskoj ekonomike.*

very limited.[35] This field still has a prominent place in the activities of the institute.

CEMI also took some steps toward developing a philosophy of perspective planning in the late 1960's. The negative reception of Faerman's 1971 book — together with general calls for practicability — may have lead to a diminished interest in these questions.[36] It is notable that much of the present work on structural and long-term questions — like that of Jaremenko — is conspicious in its neglect of the questions concerning institutions and rules of economic conduct.[37] Compared to the efficiency-thinking of SOFE, this work is almost Listian. And furthermore, compared to the normativeness of SOFE, much of it is explicitly positive.

3.4. *Integrated planning*

In early working plans for CEMI, much emphasis was placed on the automated information and planning systems of the economy. This was very much a part of Nemčinov's interests. In the 1960's CEMI was competing for the central role in this work, but finally in 1971 the task of coordinating the work on automated information systems was given to the newly-founded All-Union Scientific Research Institute of Problems of Organization and Management under the State Committee for Science and Technology. After that the researchers of CEMI have mainly participated in the work on the central part of this system, ASPR, though work on other information and management systems has continued, too. In the late 1960's CEMI proposed B. Mikhalevskij's five-level system of models to be used as the backbone of ASPR.[38] Later the above-mentioned project of Baranov, Danilov-Danil'jan and Zavelskij was proposed for this role, and since 1972 the same proposal was made concerning the so-called System of Integrated Planning (Sistema

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[35] Urinson, Ja.—Klocvog, F.—Macnev, D. (1981): op.cit., 856; Baranov, E.—Modin, A. (1980): Prikladnye ekonomiko-matematičeskie issledovanija i zadači soveršenstvovanija ikh organizacii i planirovanija. *EMM* XV:4, 629—641.

[36] Faerman, E. (1971): *Problemy dolgosročnogo planirovanija.* One writer in *Voprosy Ekonomiki* (Vikent'ev, A. (1972): Ob odnoj koncepcii dolgosročnogo planirovanija. *VE* 10, 77—88) heavily criticized Faerman's abstractness and lack of concrete Soviet material. While Faerman's central philosophical idea was the centrality of research and development in long-term development, a 1972 writer on party-mindedness in economics — without mentioning names — strongly condemned "the bourgeois conception of the primacy of "the sphere of knowledge" ". See Sakov, M. (1972): V. I. Lenin o principe partijnosti v političeskoj ekonomii. *VE* 4, 3—16. Vikent'ev's article is commented upon in Fedorenko, N. (1974c): Kritika ošibok ili ošibočnaja kritika. CEMI work on long-range planning goes on, but on a notably less abstract level. See Maiminas, E.—Tambovcev, V.—Fonotov, A. (1983): O razrabotke koncepcii ekonomičeskogo i social'nogo razvitija SSSR. *EMM* XIX:4, 583—597.

[37] This is noted in Jasin, E. (1983): Review of Jaremenko, Ju. (1981): *Struktural'nye . . . EMM* XIX:1, 182—187.

[38] Mikhalevskij, B. (1972): *Sistema modelej srednesročnogo narodnokhozjajstvennogo planirovanija.* Mikhalevskij died accidentally in 1973.

Kompleksnogo Planirovanija).[39] In fact, the latest change implied a clear rupture with CEMI's earlier conceptions of the possibility of the "mathematization" of planning.

SKP is not a system of planning models, but a more general approach to long-term planning. Briefly, it can be characterized as the CEMI version of goal-programme planning, which has been a widely researched approach in the Soviet Union of the 1970's.[40] The main characteristics of goal-programme planning are 1) taking certain final goals of economic activity — not the "attained level" or resources structured by branches — as the departure point of planning, 2) connecting these goals with all the resources directly or indirectly necessary for their attainment and 3) planning all the phases of the reproduction cycle in a unified way. The departure from the branch principle is so central to the programme approach that one recent exposition of the goal-programme approach, published under the auspices of CEMI, notes that, popularly, this approach has become a synonym of the "inter-organizational approach".[41]

A programme is a planned complex of actions for reaching a given goal. The GOELRO is typically seen in Soviet literature as an early example of programmes. Before the 1970's Soviet programmes were typically confined to techno-economic or military tasks — for example, the space programme — but during the 1970's the goal-programme approach has been more and more often seen as the appropriate tool of grasping different problems. A hierarchy of programmes is included in the present five-year plan, and their importance will no doubt increase in the future.

SKP proposed that programmes were to be made the core of long-term planning. Fedorenko has even seen the working out of the methods of goal-programme planning as the proper way of concentrating all the work of developing planning.[42] SKP was widely presented in the 1979 book of Fedorenko, where it was seen as "the realization of the theory of optimally functioning socialist economy in the area of national economic planning".[43] The connection between SOFE and SKP is most

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[39] The basic account is in *Kompleksnoe* ... (1974), op.cit. Also see Cave, M. (1980): op. cit., 62—64.

[40] The main research centres are CEMI, IEiOPP in Novosibirsk under Aganbegjan, at Moscow State University under G. Popov and at the Main Computer Centre of Gosplan under G. Pospelov. See Raisberg, V.—Golubkov, E.—Pekarskij, L. (1975): *Sistemnyj podkhod v perspektivnom planirovanii*; Petrakov, N.—Rudneva, E. (1978): O roli, meste i funkcijakh kompleksnykh programm v sisteme upravlenija socialističeskoj ekonomikoj. *EMM* XIV:4, 639—653; Makarov, I.—Sokolov, V.—Abramov, A. (1980): *Celevye kompleksnye programmy*; Afanas'ev, V. (1981): *Obščestvo: sistemnost', poznanie i upravlenie*, 239—330; *Soveršenstvovanie metodov rukovodstva ekonomiki* (1982), 109—143.

[41] See *Programmo-celevoj metod v planirovanii* (1982), 34.

[42] Fedorenko, N. (1978a): Problemy programmo-celevogo planirovanija i upravlenija. *EMM* XIV:4, 629—638.

[43] Fedorenko, N. (1979a): *Nekotorye voprosy teorii i praktiki planirovanija i upravlenija*, 16.

clear in the predominance of goal-orientedness — a feature common to all the different variants of goal-programme planning. Some critics of SKP have implied that this emphasis leads to neglecting the importance of building "the material and technical basis of communism". The status given to programmes is also seen as implying the abandonment of the branch principle of planning with its claimed emphasis on the consistency of plans.[44]

These criticisms have naturally been rejected by the spokesmen of CEMI, though the actual relation of programmes and the branch structure of the economy still must be seen as being quite unclear. As several writers have noted, the increasing importance of programmes in planning makes it necessary to manage interbranch complexes (like energy, the agro-industrial complex, transport) as one whole.[45] This need of (at least theoretically) temporary interbranch management organs has even been included among the characteristics of the approach.[46] In fact, some recent CEMI articles see goal-programme planning not as a complement to branch-structured planning, but as a substitute for it.[47] Much research is being done into this problem of the partitioning of the economy. Some practical steps — especially in respect to agriculture — have also been made.

Perhaps the main specialty of SKP as a variant of goal-programme planning has been its stress on the tree of goals as the proper way of presenting the various objectives of the socialist society. A corresponding tree of resources is also sometimes used. There have been attempts to present the tree of goals as a natural development of the idea of optimality under socialism. Difficulties in defining a global objective function and the increasing influence of general equilibrium theory had by the early 1970's made Pareto-optimality a household word among Soviet economists. Later some of the political economists of SOFE wanted to distinguish between Pareto optimality in a narrow sense (with the incomes of population groups as the arguments) and in a wide sense (with the functional blocks of the society as the arguments). This differentiation is supposed to show the difference in the objectives of the market economy — narrowly restricted to money — and of the socialist society widely taking into account all the different social, ideological, ecological and other goals as they are presented in the tree of goals.[48]

Basically, SKP contains a scheme of long-term planning with special emphasis on the process of goal-determination. In this respect, it is evidence of a widening scope of research. The approach, however, is basically normative, proceeding from

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44 Ivančenko, V. (1975): *Metodologija narodnokhozjajstvennogo planirovanija*, 49—56.

45 See the discussion in Tambovcev, V.—Tikhomirov, A. (1982): *Organizacija upravlenija kompleksnymi programmami.*

46 *Programmo-celevoj* ... (1982): op.cit.

47 Sukhotin, Ju. (1983): O motivacionnom aspekte khozjajstvennogo upravlenija. *EMM* XIX:2, 328—345.

48 Pčelincev, O. (1976): Protivorečija buržuaznoj teorii razpredelenija dokhoda i princip optimuma po Pareto. *EMM* XII:3, 455—467.

decision theory and not from existing decision-making procedures. The final goal-determination is left to be done by the political mechanism. Much emphasis is laid on different expert evaluations.[49] Generally, the importance of non-formalized methods of planning is seen to be much bigger than often earlier thought,[50] and this is especially due to the role given to subjective estimates in determining different goal normatives and in weighting them against one another. There seem to be no illusions of an objective decision making:

> Naturally, using expert estimations is connected with an inescapable increase in the role of the subjective element (both because of the subjectiveness of the expert evaluation and because of the considerable dependance of the final results upon the selection of the method of work). No illusions should be cherished about being able to completely compensate for this drawback with the help of 'mathematical tricks'; especially as most of the tasks met with here are either mathematically incorrect or generally without strict mathematical contents. But approaching carefully and critically one may even then hope to reach results that are applicable in practice.[51]

Goal normatives, expert evaluations giving different aspiration levels, are the practical definition given to the optimum regime of the SOFE of the 1980's.

Implementing CEMI proposals for goal-programme planning would certainly imply far-reaching organizational changes.[52] At present, the status of existing programmes in Soviet planning is uncertain, and very much research is being done in the different institutes. An interesting example of this is the idea of socio-economic planning proposed by E. Z. Maiminas, a central figure behind SKP.[53]

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[49] The latest CEMI version of the tree of goals is in Tambovcev, V. (1982): *Analiz celej v upravlenii obščestvennym proizvodstvom*, 37—48.

[50] Here is a small but characteristic example. In the 1971 edition of the reference book *Matematika i kibernetika v ekonomike* (1971), 116, the systems approach is said to require the existence of a quantitative objective function. The 1975 edition (p. 519) leaves out the requirement of quantitativiness.

[51] See *Sistema modelej* ... (1982), op.cit., 132—149. Another source lists three basic ways of determining goals (rational norms, generalizations upon "representative" group information and expert evaluations), which all have substantial subjective elements. Lin, V. —Fonotov, A. (1982): Problemy izmerenija celej kompleksnykh programm. *EMM* XVIII:4, 581—591.

[52] In addition to Sukhotin, Ju. (1983): op.cit., see Novikov, E.—Samokhin, Ju. (1976): *Kompleksnye narodnokhozjajstvennye programmy*, which proposes limiting the role of Gosplan in programme planning to that of the orderer of the programmes. Incidentally, just after publishing of the 1979 reform decisions — but three years after the book by Novikov and Samokhin — a review of this book was published seeing the book as abandoning the experience of Soviet planning. The 1979 decisions naturally did not contain the more radical proposals of CEMI. See Vikent'ev, A. (1979): Ob odnoj koncepcii kompleksnykh programm. *VE* 9, 134—138.

[53] Maiminas, E. (1974): O razvitie sistemnogo podkhoda k narodnokhozjajstvennuju planirovaniju (teoretičeskie problemy). *EMM* X:5, 851—867; Maiminas, E. (1979): Teoretičeskie problemy modelirovanija social'no-ekonomičeskoj sistemy. *EMM* XV:4, 653—667; Vilkas, E. —Maiminas, E. (1981): *Rešenija: teorija, informacija, modelirovanie*, 239—265.

For Maiminas, conceptualizing the connection between "the economy" and "the society" has gone through three phases in Soviet planning theory. In optimal planning theory — as in the work of Kacenelinboigen's group[54] — the economy was seen as a subsystem of the society. The second phase is that of the system of models of Baranov and others: the society is made up of economic and other blocks, and its objectives are formed in interblock iterations. Referring to Kornai, Mikhalevskij and Petrakov, Maiminas now sketches the third phase. Models like that of Baranov are still based on techno-economic thinking: technical progress and preferences are exogenous, organizations are almost bypassed and social factors are almost neglected. Furthermore, Maiminas does not find the idea of a final equilibrium state common to these models too convincing. The basic characteristic of the third phase will be in the understanding that technical, economic and social factors are interconnected throughout all the "parts" of the economy. They all pervade the economy.

Maiminas knows well that the seeming implication of his analysis, a call for the modelling of the economy as a "techno-economico-cultural totality" is not possible to fulfill. Therefore, he changes perspectives by abstracting: modelling should be directed towards the planning and informational system of the society. This he calls metaplanning, one example of which is seen in the preparing and implementation of economic reforms. Adaptive models with developing structures could be used in this modelling. As much methods are largely undeveloped, simulation modelling of different economic management systems is favoured by Maiminas, too.[55]

Maiminas's idea is an outgrowth of his prolonged research into the informational aspects of planning[56] as well as a modern Soviet variant of the ideology of social engineering. One of its intriguing features is in taking the existing procedures of planning, no optimal regimes, as the point of departure. Naturally, such study faces formidable informational and other obstacles anywhere — and certainly not least of all in the Soviet Union — and Maiminas is the first to admit that the implications of his proposed research strategy remain to be explored.

3.5. *SOFE and political economy*

The political economy of SOFE is to be analyzed in some detail below, but some developments in the relationship between the traditional Marxist-Leninist political economy of socialism and SOFE during the 1970's should be noted already here.

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54 On the other hand, Šatalin still proceeds from this conception in Šatalin, S. (1982): *Funkcionirovanie ekonomiki razvitogo socializma*, 44.

55 Žitkov, V.—Leibkind, Ju.—Maiminas, E.—Samokhin, Ju. (1983): Kompleksnoe social'no-ekonomičeskoe planirovanie: voprosy metodologii i modelirovanija. *EMM* XIX:3, 407—419.

56 Maiminas, E. (1971): *Processy planirovanija v ekonomike.*

This relation was utterly unstable during these years. One important explanation for this lays in the heterogeneity of traditional political economy. The official textbook of 1954 was — as has been seen above — an attempt to gain common viewpoints among the economists. The most that the book could do was to push existing disagreements under the carpet. In the Post-Stalinist framework, the old and the insurging new debates — some of them connected with the birth of the theory of optimal planning — have doomed all the attempts to create a common understanding of Marxist-Leninist economic doctrines. Such attempts have been recurrent,[57] reflecting a deeply-rooted belief in the possibility and necessity of not only ideological but also scientific unanimity.

Frustration in the continuous disagreements and practical impotency of the political economists has been expressed several times in the 1970's by the highest ideological functionaries. Thus, when the work of the Institute of Economics of the Academy of Sciences was reoriented in the early 1970's (below, p. 152), the then head of the Party Central Committee Department for Science, the archconservative S. P. Trapeznikov, went so far as to say that the existing level of political economy made it totally understandable that certain economists had started to write a separate constructive political economy. To soften this reference to the SOFE of the late 1960's, Trapeznikov went on to note that neither had these economists been able to produce a fundamental work in political economy.[58] Attempts to reorient political economy were thus anyway encouraged.

In the same connection, the vice-chairman of the Academy of Sciences, the philosopher P. Fedoseev — more of a conservative than a radical in the philosophy establishment — poured a veritable flood of criticisms over those political economists overly critical of the new directions of economics:

> ...there still is a certain number of economists who have not been able to reorient in new circumstances. ... Some of these 'theoreticians' often have a dogmatic attitude toward the work that is done by economists belonging to different directions of our economic theory and practice. Hearing the word 'goal', they are ready to shout: 'that is teleologism'; the term 'consumption' they immediately connect with vulgar political economy; and the one that mentions 'utility' is at once condemned as 'resurrecting the work of Böhm-Bawerk, the theory of marginal utility', and so on. Such an approach is, in our opinion, not constructive and hinders the development of economic science. ... It should be seen that certain economic categories, only used for the

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57 The Academy of Sciences set producing such a book as a goal already in 1968 (Fedorenko, N. (1973a): Aktual'nye problemy razvitija sovetskoj ekonomičeskoj nauki v SSSR. *VE* 7, 50—63). In the late 1970's the book was already said to have been written, but the future publication of *Ekonomičeskoj stroi socializma* in three volumes was not announced until 1982. There is no reason to believe that this book could put an end to politicaleconomic disagreements.

58 Trapeznikov, S. (1974): Ekonomičeskuju nauku — na uroven' sovremennykh zadač kommunističeskogo stroitel'stva. *VE* 2, 3—18.

> purpose of apology of capitalist relations by bourgeois economists, have an important role in the planning and managing the economy of the new society.[59]

Thus, in the same way as the Leninist conception of the Cultural Revolution had meant being open to adopting the achievements of bourgeois culture, the Scientific and Technical Revolution — the common Soviet shorthand for the "new circumstances" referred to by Fedoseev — necessitated making use of the achievements of the bourgeois vulgar economics. This also meant — as will be seen below — rehabilitating the Neoclassical approach to the economics of socialism within political economy.

The heterogeneity and uncertain position of the traditional political economy were reasons for the instability of the relation between it and SOFE. On the other hand, there was no generally accepted understanding of the political economy of SOFE. Therefore, while there has been a discernable trend of a change from the antagonisms of the descriptive and the constructive political economies of the late 1960's to the subordination of SOFE to the political economy lately, finding a stable relation has been — and by necessity will be — impossible.

As already pointed out, the attitude of the sofeists to the political economy changed starting in the 1960's. As late as 1971 an important reference work prepared in CEMI, obviously referring to the "laws" of traditional political economy, maintained that "the systems approach dismisses *a priori* postulation of economic laws or the derivation of them from incidental non-stable connections within the system. The model of the system must be logically noncontradictory".[60] Thus, a law of the priory growth of the production of the means of production — to use an obvious example — could not exist, as it just reflected one phase of industrialization ("an incidental non-stable connection") and stood in contradiction to the basic economic law of socialism, putting the satisfaction of human needs in the first place (see chapter 4). The sentences quoted above do not appear in the 1975 edition of the same reference work. SOFE was withdrawing all explicit criticisms of the traditional political economy.

By the mid-1970's a well-placed political economist might write in EMM that all attempts by bourgeois ideologists to divide Soviet economists into progressives and conservatives had their only possible foundation in certain mistakes and unclear formulations of some economists.[61] More specifically, Soviet economists had shown that the idea of decentralizing the economy was a totally false alternative. Thus, the time had come for a new reapproachment, this writer seemed to conclude, calling for the unity of party-mindedness and scientific principles in economics.

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[59] Fedoseev, P. (1974): Ekonomičeskaja nauka: nekotorye zadači ee razvitija. *VE* 2, 60—64.

[60] *Matematika i*... (1971), op.cit., 167.

[61] Vavilov, A. (1974): Ekonomičeskuju nauku — na uroven novykh zadač. *EMM* X:4, 643—652.

Withdrawing criticisms of political economy and publishing calls of unity were the steps taken by CEMI. At the same time, the relationship of some political economists to SOFE was also changing. An economist like I. V. Kotov continued his work on connecting the optimizing approach and Marxist theory, already started in the 1960's.[62] Of bigger importance are certain publications by economists from the Central Committee Academy of Social Sciences, newcomers to the field who had not tied their opinions in earlier debates. In 1976 Vadim Medvedev — since 1978 the Rector of the Academy — published an important monograph, complaining about the lack of interest shown by the political economists in Marxist interpretations of optimizing in economics, and offering his own interpretation of Kantorovič and Novožilov.[63] On value theory, Medvedev's basic proposal was to interpret the crucial Marxian concept of "socially necessary labour time" differently in different social formations. Echoing Novožilov, Medvedev wrote that the correct interpretation in socialism is that given by the optimizing approach. It is perhaps worthy of note that just two years later two CEMI writers took the same attitude toward defining "socially necessary labour time" — though without referring to Medvedev.[64]

In the same year of 1976, V. S. Dunaeva, also from the Academy of Social Sciences, published a monograph stressing the importance of the objective economic laws of socialism as a basis of the possibility and necessity of optimality.[65] Other political economists were working the other way around — interpreting Marx using Kantorovič.[66] By the late 1970's — as will be seen below — several political economists were writing on optimality and social utility. Finally, at a meeting held at the Party Central Committee, the problems of utility, optimality and defining socially necessary labour time were enumerated as the most important current research topics in the political economy of socialism.[67] A more graphic evidence of the influence of mathematical economics upon political economy could hardly be given. Far from living in a hermetic world with all attention given to their traditional theories, political economists were trying to survey the relevance of the optimizing approach upon their thinking. It had only taken some twenty years from the

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62 Kotow, I. (1972): *Mathematische Methoden in der Ökonomie und politische Ökonomie des Sozialismus.* Also Šekhet, N. (1972): *Planovaja cena v sisteme ekonomičeskikh kategorii socializma.* While Kotov's focus is on classical optimizing models, Šekhet's emphasis is on *khozrasčet* and equilibrium pricing.

63 Medvedev, V. (1976): *Socialističeskoe proizvodstvo.* In 1983 Medvedev became the head of the Central Committee Department for Science and Higher Education.

64 Dement'ev, V.—Ovsienko, Ju. (1980): Predel'nye i srednye veličiny v analize obščestvenno neobhodimykh zatrat truda. *IAN* 6, 34—42.

65 Dunaeva, V. (1976): *Ekonomičeskie zakony socializma i problemy narodno-khozjajstvennogo optimuma.*

66 Pevzner, Ja. (1978): *Gosudarstvenno-monopolitičeskij kapitalizm i teorija trudovoj stoimosti,* 98—109.

67 Volkov, M. (1978): Aktual'nye zadači ekonomičeskoj nauki. *Kommunist* 10, 66—74.

birth of optimal planning theory, and had finally been forced by the appearances of the Trapeznikovs and Fedoseevs.

The most explicit offer of truce between the two brands of economics was made by Dunaeva. The terms offered were fundamentally simple. Mathematical models must be based upon correct economic theory — "or on political economy", as she puts it. On the other hand, she admits that developing mathematical models had given "a big stimulus" to developing economic theory in fields like that of optimality and of efficiency criteria. And what is most important, there should be no talk about separate constructive and descriptive political economies. Optimal prices must be based on the labour theory of value *a la* Novožilov, not on marginal utility (*a la* Šatalin, see below, p. 196). All the previous talk of the nonexistence of the law of value in socialism should, therefore, also be forgotten (compare below, p. 197). The falsity of the Arrow-Debreu based decentralizing interpretation of the planning problem (Volkonskij, above, p. 106) must also be understood (here Dunaeva uses the Novosibirsk economist and critic of SOFE K. K. Val'tukh; see above, p. 98). The existing political economy of socialism must be accepted as a totality. All the ideas of basing the economic optimum on only some of the laws of political economy (see above, p. 116) are incorrect. The optimum is the result of all the existing objective laws. Among them Dunaeva includes the law of the primary production of the means of production.

Tough as the terms offered by Dunaeva were compared with the earlier ambitions of SOFE, the response of the sofeists was not slow in coming. A political economist of CEMI wrote a very positive review of Dunaeva's book,[68] and she was soon listed on the editorial board of EMM. To continue the work already done on the political economy of SOFE, work upon a book on the theme was started in 1977. In one of the earliest products of this project, it was admitted that "...the critics of 'constructive political economy' were right in opposing the attempts to replace 'traditional political economy' with SOFE, which were objectively destroying the heritage of Marxist-Leninist economic science and disparaged the importance of the "nonoptimizing" ideas of it".[69] This was the final apology for the early ambitions of SOFE.

But if SOFE was not to be the new political economy of socialism, what was its scientific status? To provide an answer, Ovsienko and Sukhotin refer to the literature of the 1960's on the relation between political economy and the other

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[68] Kirillov, S. (1977): Review of Dunaeva, V. (1976): *Ekonomičeskie ... EMM* XIII:2, 404—408.

[69] Ovsienko, Ju.—Sukhotin, Ju. (1979): K voprosy o meste teorii optimal'nogo funkcionirovanija ekonomiki v sisteme ekonomičeskikh nauk socializma. *EMM* XV:4, 783—795, cited on p. 784. The main product of the project finally came out in early 1984, too late to be fully incorporated into this study. On the other hand, its main findings have been available in articles. See *Vvedenie v teoriju i metodologiju sistemy optimal'nogo funkcionirovanija socialističeskoj ekonomiki* (1983).

economic disciplines. The hierarchy of the disciplines which they borrow is as follows, advancing from the most general level: 1) political economy as the methodological and theoretical foundation of all the economic disciplines, 2) general economic disciplines like the economics of planning or the history of economic thought, 3) functional economic disciplines like labour economics or monetary economics and 4) branch disciplines like the economics of industry.[70] In this division, Ovsienko and Sukhotin conclude that SOFE, which is essentially a theory of planning and managing the economy, is obviously one of the general economic disciplines. Its specific task is to study the mechanism of using the economic laws found by political economy.[71] Hereby, SOFE not only uses but also concretizes and enrichens the results of political economy. Furthermore, there are also certain specific economic laws of efficient planning and management which are studied by SOFE but not by the more abstract political economy. Thus, the latter tells what is the essence of pricing, while the former studies the principles of pricing natural resources. This, Ovsienko and Sukhotin conclude, is the basic difference between SOFE and political economy, not, for example, the use or nonuse of mathematical methods. Furthermore, SOFE is based not only on political economy, but also on the other social and natural sciences.

It might be concluded that Ovsienko and Sukhotin are giving political economy the same niche Stalin reserved for it: that of general ideology. While Stalin saw "the rational organization of the forces of production ... national economic planning" as "not the object of political economy of socialism, but (the object) of the economic policy of the leading organs", Ovsienko and Sukhotin see the very same problems as the proper topic of SOFE. Here is the fundamental difference.

Accepting the theoretical and methodological status of a metatheory for political economy does not mean that the sofeists couldn't try to develop a political economy starting from their own viewpoints. Lately, in an article and in a monograph Fedorenko has tried to present the political-economic foundations of SOFE as part of dialectical and historical materialism.[72] SOFE now wants to be more orthodox than previous orthodoxy. Citations from Lenin are used as valid

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70 The relation of different economic disciplines has been long debated in the Soviet Union. While the classification of Ovsienko and Sukhotin emphasizes the abstractness of political economy and leaves much room for their level 2, many others stretch the domain of political economy to cover "the scientific basis and methodological fundamentals" of planning (see *Ekonomičeskaja enciklopedija* (1974—1980). Tom 3, 290—291). The general problems of efficiency and optimality are thus seen as an object of political economy.

71 This is usually seen as part of the domain of political economy. On the other hand, Šatalin in 1982 saw the task of the theory of the optimally functioning socialist economy as giving the synthesis of socialist productive relations (which for Ovsienko and Sukhotin belongs to political economy). See Šatalin, S. (1982): op.cit., 17.

72 Fedorenko, N. (1978c): K voprosy o "kletočke" socialističeskogo proizvodstva. *Voprosy filosofii* 4, 33—48; Fedorenko, N. (1980): *Voprosy optimal'nogo funkcionirovanija ekonomiki.*

proofs, and a part of the previous controversies is seen — following the ideas of Petrakov and others (above, p. 116) — to follow from the difference between contemplative and practical Marxism:

> The economic theory of socialism was created long before the victory of socialism as a scientific theory based on the point of view of what should be, what should come and replace capitalism. Even in socialism it (economic theory — P.S.) should study not only what has been and is, but also create ('construct') a scientific presentation of what kind of economic relations are adequate for socialism and communism, i.e. correspond to its character.[73]

The normativeness of the approach of SOFE is thus still upheld, even as far as to compare SOFE to the pre-revolutionary (presumably both utopian and scientific) socialist ideas, contrasted to the political economy of really existing socialism.

The strategy used to show the orthodoxy of SOFE is to argue how modern systems theory shows the correctness of Marxist-Leninist dialectics and how the theory of hierarchic systems is actually based on the law of quantitative and qualitative change. What is more interesting than these commonplaces of the modern Soviet philosophy of science is the change in the form of presentation now completed. In the 1960's the axiomatic method was seen as the proper model of SOFE. Now Fedorenko tries to follow the example given by Marx's *Capital*. As this is the way in which the political economy of socialism is nowadays also presented, SOFE is thus made part of the seemingly endless debates of the political economists (see chapter 4). Taken separately, the difference between Fedorenko's books of 1968 and 1980 seems huge. As has been seen, this change has its reasons.

3.6. *Some debates around SOFE*

One might think that the criticisms of SOFE put forward in the early 1970's just repeat old points. Bojarskij still wrote on the impossibility of a utility-based global objective function.[74] Kac still stressed the difference between static and dynamic optimizing,[75] and Jakov Kronrod still did not accept the idea of a single global objective function.[76] Juri Belik, in accusing A. M. Rumjancev, among others, of exaggerating the importance of prognoses, basically repeated Strumilin's recollections

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[73] Fedorenko, N. (1980): op.cit., 37—38.

[74] Bojarskij, A. (1962): *Matematiko-ekonomičeskie očerki*; Bojarskij, A. (1973): Matematičeskie metody i optimal'noe planirovanie. *PKh* 11, 24—33; Bojarskij, A. (1977): *Statistika i optimal'noe planirovanie*.

[75] Kac, A. (1972): Zapozdalye priznanija i besplodnye zaimstvovanija. *PKh* 7, 91—108; 9, 107—127; 10, 103—121. To show the importance of these articles, they were printed in abnormally large letters.

[76] Kronrod, Ja. (1973): Teoretičeskie problemy optimal'nogo planirovanija narodnogo khozjajstva. *PKh* 5, 80—92.

from the times of the Stalinist revolution.[77] On second sight, however, one notices that all these articles appeared in the journal of Gosplan, not in *Voprosy ekonomiki* as earlier. Though purely political economic arguments were also put forward, the change is notable.

The first in this stream was the 1969 article of the main "economic reformer" of Gosplan, A. Bačurin, aptly entitled "V. I. Lenin and modern problems of national economic planning".[78] Bačurin was against laying emphasis on prognoses, against using a single objective function, against basing models of the economy on mathematical algorithms (and not on Marxist-Leninist theory) and against ignoring the role of the state, but he was for preserving the heritage of Soviet economics and planning. Using mathematical methods, Bačurin concluded, had to be based on Marxist-Leninist theory, not on any ideas about prices close to the ideology of market socialism. When Nikolai Kovalev, the head of the Main Computer Centre of Gosplan, criticized SOFE a year later for a nihilistic attitude toward central planning and put it squarely in the same company with "the gibberish choir of revisionists, social modellers and overthrowers of Marxist-Leninist theory",[79] he was just underlining Bačurin's message.

Clearly, CEMI must have been very sensitive to attacks against market socialism in this post-Czechoslovakian situation. While the relation of CEMI to traditional planning had been quite critical, eulogies for the "Leninist heritage" were the order of the day. These must be the facts explaining the otherwise totally incomprehensible debate on the Cobb-Douglas production functions.[80] The CEMI

[77] Belik, Ju. (1973): Naučnoe prognozirovanie v perspektivnom planirovanii. *PKh* 5, 24—33. The article did not mention the sofeists, but was mainly about the 1920's. A promised second part dealing with modern times never appeared, for reasons to be seen soon.

[78] Bačurin, A. (1969): V. I. Lenin i sovremennye problemy planirovanija narodnogo khozjajstva *PKh* 11, 3—18. Bačurin is a vice-chairman of Gosplan. In 1977, while noting that mathematical economists had been correcting their earlier "half-baked" ideas, Bačurin saw mistakes that had been committed both in uncritically taking bourgeois ideas into the theoretical arsenal (for instance, the degree of randomness in economic processes, the importance of different factors of economic growth, the role of supply and demand in price setting and the principle of the self-steering of enterprises) and in neglecting basic corollaries of Marxism-Leninism (for instance, the determining role of production in social development, the productivity of labour and socially necessary costs and the determining role of the system of objective economic laws). Bačurin, A. (1977): *Planovo-ekonomičeskie metody upravlenija*, 95—101.

[79] Kovalev, N. (1972): Političeskaja ekonomika socializma i ekonomiko-matematičeskie metody. *PKh* 5, 30—40.

[80] Already in 1969, when the Presidium of the Academy of Sciences had a meeting appraising the work of CEMI and the Institute of Economics, academician Khačaturov — then the only one to criticize CEMI — regarded it as incorrect to use Cobb-Douglas. See Razvitie issledovanii v oblasti ekonomiki (1970). *VAN* 2, 13—20. The topic was later taken up by Kac (note 75, above). For a matter-of-fact discussion see Satunovskij, L. (1976): Po povody proizvodstvennoj funkcii Kobba-Duglasa. *PKh* 1, 101—110. From CEMI Kac was answered in Fedorenko, N. (1974c): Kritika ošibok ili osibočnaja kritika.

researchers B. N. Mikhalevskij and A. I. Ančiškin had got results showing a slowdown in technical progress, or more generally a diminishing importance of the intensive factors of growth using this method. True enough, production function analyses are sensitive to specifications,[81] but obviously the real basis of the criticisms heaped upon these scholars was not in "borrowing old tools from bourgeois economists" — as was said — but in receiving gloomy results when they were least needed. One critic of Mikhalevskij even called his results "irrational" — after all, it was the time of the Scientific and Technical Revolution.

Institutional factors must explain much of the attacks of 1972—1974. Gosplan was not willing to be freed of current planning, as was proposed by CEMI in 1972.[82] Debates about automated informational systems were topical, and perspective planning was to be started. Even if Gosplan didn't like any proposals for changing the institutional system of power, one should note following Cave[83] that the basic reason put forward for rejecting the proposals of CEMI concerning ASPR was their utter impracticality.

The debate between Gosplan and CEMI was given a surprising twist when a "I. Solov'ev" — a totally unknown person — published a short note in *Pravda* criticizing Kac, Belik and Kronrod for false attacks against Soviet economists and for not honouring party decisions on the importance of developing mathematical methods.[84] The Gosplan journal surprisingly did not recant, but organized a discussion on the theme.[85] Only two of the participants, Evgenij Kapustin, the new head of the Academy of Sciences Institute of Economics and V. V. Kossov, the future head of the Main Computer Centre of Gosplan, and a coauthor of Pugačev, were trying to put brakes to the criticisms of SOFE.

Other participants did not spare their words in implicitly answering *Pravda*. Kronrod (though somewhat in a glass house himself, see below, p. 146) repeated the parallel of SOFE and market socialism. Muntjan, the philosopher, saw the centre of ideological class struggle as having moved to the field of economics. N. P. Lebedinskij, who had succeeded Kovalev as the head of the Main Computer Centre

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81 In the Soviet context, see Bergson, A. (1979): Notes on the Production Function in Soviet Postwar Economic Growth. *Journal of Comparative Economics* III:2, 116—129.

82 See *Problemy optimal'nogo* ... (1972): op.cit., 38. Similar proposals were included in the proposals for goal-programme planning. While for instance Aganbegjan proposed (Aganbegjan, A. (1981): Put' k soveršenstvovaniju tekhnologii planirovanija. *Kommunist* 10, 33—42) concentrating the activity of Gosplan on perspective planning, the decisions made in 1982 only seem to give it more authority in the current management of the economy. See *PKh* 1982:10, 72—79.

83 Cave, M. (1980): op.cit., 64—65.

84 Solov'ev, I. (1973): Strannaja pozicija. *Pravda* 4.6. Kac's views of production functions have also invited other criticisms. See the articles by Gal'perin and Kandel' in *IAN* 1974:4.

85 Aktual'nye problemy planirovanija (1973). *PKh* 10, 152—157. Also see Bor, M. (1972): *Effektivnost' obščestvennogo proizvodstva i problemy optimal'nogo planirovanija*, 183—193.

of Gosplan after the latter's death in 1971, as well as V. M. Gluškov, the centralistic cybernetician of Kiev, answered Pravda by driving a wedge between using mathematical methods and SOFE. M. Z. Bor, a veteran of Gosplan, saw SOFE as only having negative effects in this respect. Bačurin, Lebedinskij and Belik all strongly condemned the ideas of SOFE, setting the "Leninist principles of planning" against them. Lebedinskij, then the person in Gosplan directly responsible for developing ASPR, concluded that SOFE and automated management systems are incompatible, as they are based on different conceptions. It was left for Bojarskij to say that SOFE had during the ten (sic) years of its existence shown its fruitlessness.

The final word in this discussion was left to Nikolai Bajbakov, the chairman of Gosplan. In an article a year later, he also pointed out that developing mathematical methods was a different thing from SOFE. So, contrary to what "I. Solov'ev" had implied in *Pravda*, Bajbakov was obviously saying that SOFE could be criticized without opposing party decisions. Furthermore, he pointed out that mathematical methods are only one of the tools of planning. Developing the method of balances would be especially important, as this work had been neglected due to the attention given to input-output.[86] It is not without interest that a recent survey of modelling work, published by CEMI, includes a chapter on balances, based on work done at the Institute of Economics of the Academy of Sciences. The author of this chapter, a contributor to EMM, refers approvingly to this judgment of Bajbakov's.[87]

In the mid-1970's Gosplan's criticisms of CEMI had new impetus in the publication of books on systems of models and integrated planning. In reviews published in *Planovoe khozjajstvo*, all good ideas in these books were claimed to be old and all new ideas false or, in any case, faraway from practical problems. The following general characteristic of SOFE perhaps gives an impression of these criticisms:

> ...an attempt to introduce a special concept of "optimal planning", which should supplant the supposedly nonscientific, empiric planning; striving to unite vulgar utility theory with the labour theory of value, present price as a measure of utility; ignoring the principle of democratic centralism as the basis of the socialist economy, exchanging it for the so-called principle of hierarchic structure; borrowing notions from bourgeois theories (marginal utility theory, the notion of market socialism and the theory of factors of production, the idea of automatic regulation of the socialist economy by "prices of optimal plan"); denying the laws of reproduction; and piecemeal exchanging of the

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86 Bajbakov, N. (1974): Dal'nejšee soveršenstvovanie planirovanija — važnejšaja narodnokhozjajstvennaja zadača. *PKh* 4, 5—13.

87 *Sistema modelej*... (1982): op.cit., 184—207.

Marxist-Leninist theory of reproduction for the bourgeois theory of equilibrium.[88]

The writers Bor and Logvinov went on to say that one of the foundation stones of SOFE is "well known" to be the denial of the objective laws of the socialist economy. Creating automated management systems was based on Marxism-Leninism and not on integrated planning. The continuers of Nemčinov's work, they concluded, were acting against his thinking.

The criticism of Kossov and Komin on the book of Danilov-Danil'jan and Zavelskij on their models was hardly any friendlier.[89] The only thing new in the book was the strange terminology. A number of models had been described, but nothing was mentioned about implementing them. That would, however, be 95 percent of the work. The review ended by asking Nauka and CEMI to be more deliberate in their publishing policies.[90]

The last writing in this series was a 1977 review by a "D. Epštein" — another totally unknown person — on a 1974 book by Nikolai Petrakov. Writing hintingly,[91] "Epštein" let it be understood that Petrakov is a market socialist misusing mathematics and cybernetics, denying the competence of planners and forgetting the differences between capitalism and socialism. The tone of this review was such that Volkonskij and Bagrinovskij, who had been favourably contrasted to Petrakov by "Epštein", wrote a note to *EMM* calling for scientific standards of criticism.[92]

As the chance of economic reform as well as that of a return to more centralized methods of management[93] diminished, the criticisms of SOFE in *Planovoe khoz-*

[88] Bor, M.—Logvinov, S. (1975): O knigakh "Kompleksnoe narodnokhozjajstvennoe planirovanie" i "Problemy planirovanija i prognozirovanija". *PKh* 9, 134—141, cited on p. 135. Ironically enough, in the same issue was a review by the main editor of the journal of Michael Ellman's book of 1973. Ellman was judged anti-Marxist and anti-Soviet for exaggerating disagreements among Soviet economists. See Glagolev, V. (1975): Spekuljativnyj proisk dr-a Ellmana. *PKh* 9, 132—133.

[89] Kossov, V.—Komin, F. (1976): Kniga, imitirujaščaja naučnoj poisk. *PKh* 4, 134—138.

[90] Indeed, in a later issue a representative of Nauka Publishers asked CEMI to be more deliberate. A representative of the latter promised to get acquainted with the reviews and "take the necessary measures". *PKh* 1976:6, 158.

[91] Epštein, D. (1977): Ob odnoj koncepcii upravlenija. *PKh* 3, 141—148. An example of "Epštein's" standards: in a note "Epštein" (sic) asks why Petrakov does not mention the authors of some of his sources. Naturally Petrakov could not mention the name of Kacenelinboigen, who had become an unperson, having emigrated in 1973.

[92] Bagrinovskij, K.—Volkonskij, V. (1977): Pis'mo v redakciju. *EMM* XIII:4, 787—792.

[93] "Epštein", who is said to be from Leningrad according to the journal, lets it be understood that automated information systems give the possibility for more centralizing. This opinion is presented even more clearly by two Leningrad economists in many publications, where they also criticize economists like G. Lišičkin, Ja. Kronrod, Ja. Liberman and N. Petrakov for market socialism. See Moiseenko, N.—Popov, M. (1975): *Demokratičeskij centralizm — osnovnoj princip upravlenija socialističeskoj ekonomikoj*; Moiseenko, N.—Popov, M. (1976): *Teorija vosproizvodstva i upravlenie socialističeskoj ekonomikoj*. The former book (esp. pp. 167—168) is quite open in its admiration for the Stalinist economy.

jajstvo calmed down. The basic proposals of CEMI on the overturning of the planning system had been published in 1975—1976, and later proposals were either part of the hardly administratively topical discussion on the implications of the goal-programme approach (above, p. 133) or — when they came nearer to the present day — less ambitious. Differences of opinion still naturally exist[94] and the probability is high that they might flare up in case reforms become timely. The practical cooperation that Gosplan and CEMI now have seems to be of more importance than before.[95]

3.7. *Conclusion: CEMI in the 1970's*

In 1963 there were only a score of researchers in CEMI. In 1973 they were about a thousand, among them about 40 doctors and 170 candidates of science. In 1982 the institute had about 1100 workers, 50 doctors and 280 candidates of science. For a long time already, it has been the largest social science institute of the Academy of Science, and few people would deny its also being the most important economic institute. Especially after Fedorenko became the academician-secretary of the Department of Economics of the Academy in 1971, the position of CEMI within the Academy has been powerful. Both in 1970 and in 1979 the Presidium of the Academy gave a very positive appraisal of the work done in CEMI.[96] In 1979 the main problems emphasized were, on one hand, an insufficient attention given to current problems and the low number of implementable proposals given and, on the other hand, the insufficient weight put on the basic methodological problems of research and on SOFE in particular.

One of the main purposes of CEMI — as well as of all the other establishments of mathematical economics — has been to introduce mathematical methods into the economy. In spite of the undeniable advance, the achievements have, no doubt, been disappointing. This is admitted by Baranov and Modin of CEMI in a survey

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[94] This was noted in a review on SOFE's 1980 textbook exposition. Raisberg, V.—Kuranov, G. (1981): Optimizacija funkcionirovanija socialističeskoj ekonomiki. *PKh* 12, 107—109. Much stronger words were used in reviewing a book by the Novosibirsk economist D. Kazakevič in *PKh* 1981:5.

[95] In assessing the past activities of CEMI, EMM noted a turn for the better in the cooperation between CEMI and planning organs in recent years. In a way remiscent of times thirty years earlier (above, p. 75), one of the factors impending this cooperation is told to be the lack of statistics. It seems that both data published and that available to researchers has diminished in quantity lately. See Centralnomu Ekonomiko-matematičeskomu Institutu — 20 let (1983). *EMM* XIX:3, 389—396.

[96] For 1970, see the source mentioned in note 61, above. For 1979, see O naučnoj i naučno-organizacionnoj dejatel'nosti CEMI AN SSSR (1980). *EMM* XVI:2, 217—220.

in 1980,[97] where they, among other things, point out that the data processing systems established so far may be left without an efficient use. Even input-output — no doubt the mathematical method best developed for practical use — is said by Klocvog to be used just for providing "information for thought", not as "a necessary part of the planning process".[98] Klocvog, a leading authority in the field, sees the main reason for this disappointing state of affairs as being the result of the antiquated planning methodology, still based upon branch prognoses from the achieved level.

Neither has the existing planning thinking been overturned. Quite recently, Fedorenko has noted that not even the principle of plan variants has been implemented in practice.[99] There can be no optimizing of plans as long as just one variant of the plan is drafted. CEMI campaigned widely in the discussions preceeding the decisions on developing the economic mechanism made in July 1979. In an article in Pravda in 1978, Fedorenko and others outlined four main directions for economic reform.[100]

1. The methods of goal-programme planning should be developed and used more widely in a framework surpassing the present managerial branch structure. Plans should be balanced using final production targets as the points of departure for all planning.
2. Financial plans should be coordinated and integrated in a proper way with physical plans.
3. Associations working with full *khozrasčet* should be the basic economic units. Stable five-year normatives (such as prices, budget payments and interest rates) should be established. More importance should be given to long-term agreements, self-financing and credit. All the forms of gross output should be replaced with a value-added criterion. (Elsewhere, net profit is seen to be a better local criterion.[101]) The practice of planning from the achieved level should be done

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97 Baranov, E.—Modin, A. (1980): op.cit. Also see Cave, M. (1980): op.cit.; Conyngham, W. (1980): Technology and Decision Making: Some Aspects of the Development of OGAS. *SlR* XXXIX:33, 426—445. In 1977 A. Bačurin, a vice-chairman of Gosplan, regarded the following mathematical methods as useable in practice: static input-output in physical units, dynamic input-output in value units, factoral models of economic growth, models of optimal branch development, models of population income and expenditure, models of the distribution of social consumption, models of demand and supply, accounting and planning models of interregional input-output, the model of the fuel and energy balance and "some others". See Bačurin, A. (1977): op.cit., 101.

98 Klocvog, F. (1980): Ispol'zovanie mežotraslevogo balansa v praktike planirovanija. *PKh* 1, 51—61, cited on p. 52.

99 Fedorenko, N. (1978b): op.cit.

100 Fedorenko, N.—Perlamutrov, V.—Petrakov, N.—Starodubrovskij, V. (1978): Parametry upravlenija. *Pravda* 23.3. Starodubrovskij is from the Academy Institute of Economics, all the others from CEMI.

101 Fedorenko, N. (1979a): op.cit., 249—250.

away with; enterprise incentives should depend upon client satisfaction and net profits.

4. The wage fund of an enterprise should be dependent upon the value added. Management should have more flexibility in funnelling the wage fund.

Compared to the proposals of the late 1960's (see above, p. 113), those of the late 1970's are clearly more cautious. Thus the use of shadow prices is not mentioned, though the basic duality of the economy is emphasized. Wholesale trade of the means of production is still seen as a final goal, but reaching it is postponed because of existing disequilibria. A general feature of recent CEMI proposals has been the stress on the need for a permanent reform. Thus the article of Fedorenko and the others, cited above, called for a perspective integrated programme of modernizing economic management. This should probably not be seen as just a reflection of the politically stagnant climate of the late Brezhnev era, but also as a growing realization of the difficulty of the problems the Soviet economy is facing — and of the limited potentials of economic science for clear-cut recipes. Compared to the attitudes of the 1960's documented above, one is tempted to conclude that the "New Soviet Economists" have turned pessimist.[102] Certainly this pessimism is enlightened by a more thorough knowledge of the Soviet society than early SOFE was.

After the 1979 decisions, both the half-hearted way in which even these modest and vague decisions have been implemented as well as the need for further reforms have been noted by representatives of CEMI.[103]

Another possible result of the work of CEMI might be an increasing understanding of the implications of efficiency thinking among Soviet economists and planners. As to political economy, some notable changes in value theory and in the discussions on utility have been noted above. As to planning practice, a full discussion is outside the scope of this work. Two parts of this problem might, however, be noted here.

Different methods for calculating the efficiency of economic decisions should have a central role in the functioning of a centralized planned economy. Efficiency

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102 That pessimism has generally increased in the Soviet Union in the 1970's has been argued by Bushnell, J. (1980): The "New Soviet Man" Turns Pessimist.

103 On the 1979 decisions, see Petrakov, N. (1980): Problemy razvitija i soveršenstvovanija sistemy upravlenija socialističeskoj ekonomikoj. *IAN* 1, 5—17. For Fedorenko's view on the way in which the 1979 decisions have been implemented, see Fedorenko, N. (1982): Zadači ekonomičeskoj nauki na sovremennom etape. *VE* 7, 19—25. In 1981 Fedorenko proposed setting up a high-level commission for economic reform. See *Literaturnaja Gazeta* 1981:11, pp. 10—11. Interestingly, Fedorenko, Petrakov and L'vov of CEMI were among the main speakers in a large and presumably prestigious conference on developing the economic mechanism in late 1981. See Osipovič, L. (1982): Konferencija po soveršenstvovanija narodnokhozjajstvennogo planirovanija. *PKh* 4, 120—122. CEMI also seems to be involved in analyzing the results of the "Economic Experiment" started in January 1984. See *Ekonomičeskaja Gazeta* 1984:11, p. 14.

criteria were first discussed concerning investments, and some future optimal planners — notably Novožilov and Lur'e — were central figures in the early debates of the 1940's (see above, p. 69). While the first methods of efficiency calculations were approved in the late 1950's, the 1970's saw a real cascade of different officially approved methods. More than ten of them are said to exist nowadays.[104] CEMI has participated in the drawing up of several of them, most notably the method for calculating the efficiency of new technology accepted by Gosplan, The State Committee for Science and Technology and other institutions in 1977. Whatever the practical importance of this and other methods for efficiency calculations, several writers have noted that different methods, being based as they are on different conceptual frameworks, stand easily in contradiction. Notably, a different approach is followed in the 1977 methodology for new technology and in the methodology for capital investment, basically agreed upon in 1957 and last revised in 1981.

The proposal of CEMI has been to unify the different methods into a single complex methodology, naturally based upon the ideas of CEMI. Academician Khačaturov — the veteran specialist on investments and the main author of the standard methodology of investment efficiency — quite predictably is satisfied with the present methods, with the single exeption of the CEMI-authored 1977 method on new technology.[105] It is seen to reflect a conception of the socialist economy as a self-regulating system, to enlarge the importance of norms too much and so on. Khačaturov sees all further proposals based "on the so-called SOFE" as being theoretically false and impossible to implement in practice. The discussion goes on; while Khačaturov is satisfied with the present official methods, CEMI sees them as often leading to irrational decisions. Even the old discussion of unified vs. branch-specific normatives is very much alive.[106] Notwithstanding the objections of Khačaturov, CEMI's proposal for a new methodology of efficiency calculations seems to be receiving wide support.[107]

Another important corollary of SOFE concerns rational pricing, itself an prerequisite of efficient planning decisions. Important changes have taken place in the Soviet discussions on value theory, with the questions of demand and utility having

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104 Fedorenko, N.—L'vov, D.—Petrakov, N. (1982): O kriterijakh i metodakh ocenki ekonomičeskoj effektivnosti khozjajstvennykh meroprijatii. *EMM* XVIII:1, 10—21.

105 Khačaturov, T. (1983): Ešče raz ob effektivnosti kapital'nykh vloženii. *VE* 3, 54—65. For earlier comments on the 1977 methodology, see Soveršenstvovat' metody opredelenija effektivnosti novoj tekhniki (1978). *VE* 12, 106—119.

106 On the investment efficiency criteria see Dyker, D. (1983): *The Process of Investment in the Soviet Union.*

107 See Metodologija i praktika ocenki effektivnosti khozjajstvennykh meroprijatij (1983). *EMM* XIX:4, 727—731, the survey of an all-union conference deciding to submit the proposed methodology for the approval of the appropriate institutions. CEMI's answer to Khačaturov's criticisms is in Fedorenko, N.—L'vov, D.—Petrakov, N.—Šatalin, S. (1983): Ekonomičeskaja effektivnost' khozjajstvennykh meropritatij. *EMM* XIX:6, 1069—1080.

taken their place within the Marxist framework. As to practical pricing, though shadow prices are used at least in some planning calculations, no fundamental changes have taken place in Soviet planning into any of the directions proposed by different interpretations of SOFE (see above, p. 100). As Fedorenko and others noted in a recent article, neither do the new wholesale prices in effect since January 1982 "always" take into account the factors of efficiency and quality.[108] During the 1970's CEMI laid special emphasis on the need of such pricing of new commodities that would promote technical progress. Like many other economists, spokesman of CEMI like Gofman and Petrakov have proposed the system of price limits, with the lower limit of the price of a new commodity given by production costs and the upper limit given by the utility of the product. While the official decisions of 1969 and 1974 left the determination of a selling price within these limits quite unclear,[109] the sofeists were consistently proposing market-clearing pricing within these limits.[110] The marginal productivity of a commodity would thus basically determine its price, as dictated by the logic of optimal planning.

Without going through the complex Soviet discussions and practices of pricing new products,[111] it may be noted that equilibrium pricing has been a very controversial proposal even among the mathematical economists.[112] Though the principle of limit pricing has been a fundamental departure from the traditional Soviet cost plus pricing into the direction of optimal prices, it has not been implemented in practice so as to secure a profitability condusive to technical change.[113] Practical pricing has still been cost plus, and in fact it seems that the recent new official method for pricing new products still strengthens the trend away from equilibrium pricing.[114]

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108 Fedorenko, N.—L'vov, D.—Petrakov, N. (1982): op.cit., 15.

109 The basic Western references are Berliner, J. (1976): *The Innovation Decision in Soviet Industry*; Grossman, G. (1977): Price Control, Incentives, and Innovation in the Soviet Economy.

110 For a recent restatement see Volkonskij, V. (1981): *Problemy soveršenstvovanija khozjajstvennogo mekhanizma*, 46.

111 There is a partial survey in *Soveršenstvovanie planirovanija i ekonomičeskogo stimulirovanija naučno-tekhničeskogo progressa* (1977), 120—142.

112 Kantorovič, among others, has supported a wider use of state funds for covering the initial costs of production. Kantorovič, L. (1974): Ekonomičeskie problemy naučno-tekhničeskogo progressa. *EMM* X:3, 432—448. In Novosibirsk a disequilibrium pricing model of Val'tukh has been developed over several years. See Kazancev, S. (1978): K analizu modeli cenoobrazovanija na progressivnye materialy.

113 This is the conclusion in *Industrial Innovation in the Soviet Union* (1982), 497. For a Soviet confirmation see *Cena v khozjajstvennom mekhanizme* (1983), 303—332.

114 See *Ekonomičeskaja Gazeta* 1983:6, p. 15. While CEMI has maintained that the prices of new technology are prohibitively high — in some branches by a factor of 1.5—2 (see D. L'vov in Metodologija... (1983), op.cit.) — the new regulations base these prices on the production costs of the first year of production, not on those of the second and third years as earlier. This could mean a general rise in the prices of new technology.

"It is generally believed in the West that the greatest high-level support for the Central Mathematical Economics Institute (TsEMI) comes from the Politburo's most conservative (most Stalinist) members", wrote Erik P. Hoffman in 1977.[115] Conservatives certainly would have much use for mathematical methods, but Hoffman's view seems to neglect the fact that SOFE has been proposed as a system combining direct planning and market guidance. Furthermore, several researchers of CEMI have been attacked in the 1970's for making too far-reaching reformist proposals. On the other hand, even in the late 1960's CEMI was not one of the active dissident institutes.[116] The Jewish emigration of the early 1970's took perhaps some 30 workers from CEMI and contributed to personnel changes in the institute. These, however, were not very large. Overall it seems that different Soviet political currents might have quite different attitudes toward parts of the work done in this large and heterogenous institute.

Actually, it was the traditional political economy and not mathematical economics that received the most severe official reproaches in the 1970's. Since the late 1960's Lev Gatovskij, then the head of the Academy of Sciences Institute of Economics, tried, with the obvious blessing of the Academy, to change the profile of the institute to make it into a research centre of concrete economic problems.[117] This trend was reversed by a decision of the Central Committee putting the fundamental studies in political economy squarely as the main task of the institute.[118] This has been the course followed by Jevgenij Kapustin, who soon replaced Gatovskij. The official disapproval of the matters in political economy has by no means vanished,[119] and it is by no means without interest that several problems raised by SOFE — like optimality and socially necessary labour time — are among those that are said to be neglected by political economists. At the 1981 congress of CPSU, Leonid Brežnev also noted that unresolved problems had accumulated in political economy, without, however, specifying what he might have had in mind.

Two institutes have every now and then been seen as potential or actual contenders with the importance and prestige of CEMI. The importance of Aganbegjan's IEiOPP in Novosibirsk has perhaps diminished somewhat in the 1970's both because of the return of many researchers to Moscow[120] and because of more emphasis now

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115 Hoffman, E. (1977): Technology, Values and Political Power in the Soviet Union: Do Computers Matter? Compare this with the more cautious words of Martin Cave in *Industrial*... (1982), op.cit., 234.

116 Friedgut, T. (1975): The Democratic Movement: Dimensions and Perspectives.

117 Razvitie issledovanii... (1970), op.cit.

118 Povyšat' rol' ekonomičeskoj nauki v kommunističeskom stroitel'stve (1972). *IAN* 3, 5—11.

119 Trapeznikov, S. (1976): Obščestvennye nauki — idejnoe bogatsva partii i naroda. *Kommunist* 12, 19—31; Volkov, M. (1978): op.cit. Volkov, among other things, notes that very few dissertations are defended in political economy: applied economics is much more popular.

120 Popovskij, M. (1978): *Upravljaemaja nauka.*

being given to the regional problems of Siberia.[121] The Institute of Systems Research (VNIISI), strategically placed under the State Committee of Science and Technology, has noted mathematical economists (like Kantorovič), some of whom have come over from CEMI (Šatalin and Danilov-Danil'jan),[122] but — like the IEiOPP — it is incomparably smaller than CEMI and also hasn't its own journal for promoting its views.

Especially during its first years, Soviet mathematical economics used unhesitatingly promises of big economic result with little costs when lobbying first for official recognition, then for resources. When CEMI was founded in 1963, it was said that fulfilling its research programme in economic practice would double the rate of development of the Soviet economy (above, p. 90). But also the dangers of this strategy were pointed out already in the mid-1960's.

During the Stalin succession, economics could still be regarded as an untapped resource for solving the economic problems of the country. During the Krushchev succession, mathematical economics and sociology were among the tools which were given great importance in the "scientification of Bolshevism" then thought to be taking place. But in the Brezhnev succession, both mathematical economics and sociology were taken to task for not having fulfilled the hopes with which they had been vested. In the Central Committee meeting of June 1983, both Juri Andropov and Konstantin Černenko paid attention to the state of economics.[123] While Andropov confined himself to pointing out that "so far we have not studied the society in which we live and work enough and have not completely laid bare its laws, especially economic laws", Černenko was more specific. He picked out the Academy Institute of Sociological Research and CEMI for criticism. "We placed much hope (in these institutes — P.S.)", Černenko said, "but so far we just have not received the needed concrete studies of social phenomena and topical economic problems." He further claimed that these institutes have been marked by an overly concentration to promoting their own "dissertational" and other interests as well as by a weak party influence.

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121 This was emphasized in a Central Committee decision in 1977. See *Pravda* 11. 2. 1977, p. 1.

122 Later, Danilov-Danil'jan has moved over to the Academy of the National Economy.

123 See, for instance, *Ekonomičeskaja Gazeta* 1983:25.

Time will show the effects of this intervention,[124] but it seems obvious that calls for studying "the society in which we live and work" and for "concrete studies of topical economic problems" imply an approach different from the axiomatic-normative point of view of SOFE. But it is notable that as Fedorenko, Ovsienko and Petrakov celebrated the 20th anniversary of CEMI in an EMM article in early 1983,[125] they distinguished between two phases in the development of SOFE. They now admit that so far the "theoretical and methodological basic proposals of SOFE" have been developed without due regard to the problems of gradually implementing them in practice. The second phase, to start now, will be one of a "serious and many-sided study of the real economic development processes of the socialist economy", of studying "current socio-economic tasks", "concrete specifics of the real economy of socialism". In so far, then, a CEMI reconsideration preceeded the party intervention. The basic alternative to the normative and abstract SOFE would certainly be a positive and critical social analysis, but there is no evidence of circumstances having become any more favourable for such an orientation. SOFE may now be seen as a dead end, but finding a workable new course may prove difficult.

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[124] The comments of CEMI on the June 1983 plenum naturally supported its decisions but tried to play down the extent to which criticisms had been directed toward CEMI and not only Soviet economics in general. See Zadači obščestvennykh nauk v svete rešenij ijun'skogo Plenuma CK KPSS (1983). *EMM* XIX:6, 965—975. It was later announced that the Academy of Sciences Presidium had already a week before the Plenum adopted a resolution on the activities of the Academy's Department of Economics (chaired by Fedorenko). This resolution also sketched three priority areas for the future work of CEMI: a) developing the theoretical foundations of using economic-mathematical methods and data processing in the economy, b) economics of scientific and technical progress and c) economic forecasting. See O dejatel'nosti Otdelenija ekonomiki Akademii nauk SSSR (1983). *VE* 9, 153—157. While the official Academy opinion in *VAN* emphasized the need of basic political economic research in commenting upon the June Plenum, *IAN* defended implicitly the Department of Economics by leaving out all the references to specific institutes (see Ekonomičeskaja nauka i trebovanija žizni (1983). *IAN* 5, 5—12. The activities of CEMI were finally discussed in the Presidium of the Academy, which decided that the personnel and organization of CEMI is in need of streamlining, but also included modernizing the economic mechanism and structural policies among the main research problems of CEMI (see the material in *VAN* 1984:3, 37—76). In February 1984 the Central Committee criticized the Academy Institute of Economics for the low level and abstractness of work (see *Pravda* 24. 2. 1984). More useful and empirically oriented economics is thus again wanted from all researchers.

[125] Fedorenko, N.—Ovsienko, Ju.—Petrakov, N. (1983): Planomernost' i problemy soveršenstvovanija khozjajstvennogo mekhanizma upravlenija. *EMM* XIX:3, 397—406.

4. THE GOAL OF THE SOCIALIST ECONOMY

4.1. *The basic economic law in Marxist-Leninist theory*

As C. West Churchman says in his classic account of the systems approach, "... when one is considering systems it is always wise to raise questions about the most obvious and simple assumptions".[1] Certainly, for SOFE — the System of Optimally Functioning Socialist Economy — the axiom of the existence of an global objective function is a most obvious and also, seemingly, a most simple assumption. A neoclassical economist might ask: How could the tools of economics, the science of choice, be used without this axiom? Western economists, by and large, usually have an implicit instrumentalist attitude toward assumptions. Any tool is good as long as it works — that is, produces good forecasts — goes one popular variant of this attitude.

But SOFE, as it is presented — see the statement of Fedorenko cited in Introduction above, p. 12 — officially, is not instrumentalist. Following the standard Marxist pattern, it is based on the general methodological cornerstone of Scientific Realism: scientific concepts are not matters of convention but must in some sense be based on "reality". In Soviet Marxist-Leninist parlance, this widely accepted scientific idea is caught in the phrase of objective laws. It is believed that scientific laws are something existing in the reality external to human knowledge. Laws must be "found"; they are not something invented for the purpose of analysis.

Furthermore, the proponents of SOFE have stressed from the very beginning (see above, p. 111) that the Soviet political economy of socialism has found the economic law which tells the objective goal of the socialist economy, further formulated in the objective function used in SOFE. This law is the so-called basic economic law of socialism, "the fundamental importance of which for the development of all economic theory is difficult to overestimate", as Fedorenko wrote in 1968.[2]

There have been big changes in the conceptions of optimality and objective function within SOFE, but the necessity of basing the objective function on the

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[1] Churchman, C. (1968): *The Systems Approach*, ix.

[2] Fedorenko, N. (1968): *O razrabotke sistemy optimal'nogo funkcionirovanija ekonomiki*, 191.

basic economic law (BEL) has always been emphasized. At the same time, there have been clear shifts in the treatment of this law in political economy. On a closer look, it is obvious that these shifts have been influenced by SOFE. Here we probably have the most important single example of the common general ground of these two sides of the Mathematical Revolution in Soviet economics. It is often emphasized in recent Soviet literature that if a final reapproachment of these schools can be attained, it must be based on a common understanding of socialism as the Optimal Society in its basic tendency.

This chapter first sketches the basic framework in which the concept of a basic economic law is used in Soviet social theory. The next step is to analyse what kind of grounds Soviet political economy can offer for believing in its conception of the basic law of socialism. In this connection, we also point out some of the functions of this conception. Finally, the relation between goal-orientedness in SOFE and in systems thinking is briefly analysed.

This chapter is a contribution to the critique of Soviet political economy and of the political economy foundations of SOFE. The mode of the criticism is in two senses internal with regard to the object of criticism. We try to find out whether the programmatic non-instrumentalist stand of SOFE holds. To see this, Soviet political economy has to be analysed. It is said that Soviet socialism is a Good Society, but are we given any grounds for believing this? Furthermore, use is made here of the model derived from Marx's theory. Soviet political economy — as well as the latest treatments of SOFE — assert that this theory is the proper model for the economic theory of socialism. This opinion need not be accepted to use it as vehicle of criticism.

According to Marxism-Leninism, the social relations of each mode of production are a totality, which must be reproduced in the system of economic laws found by political economy. Within this totality three kinds of relations of production are usually distinguished: the production relation of departure, the basic relation of production and various derived relations of production.[3] Marx's critical analysis of capitalism as presented in *Capital* is taken here as the model of theoretical presentation. In Marx commodity — defined as a good produced for market exchange — is the starting point for deriving categories like price, money and capital. This derivation is done in accordance with the method known as rising from the abstract to the concrete, the degree of concreteness referring to the number of attributes possessed by the categories. The point of departure of the derivation is thought to be primary both logically and historically. This is the principle of the unity of the logical and the historical.

The derivation is thought to be made possible by the fact that the commodity contains an immanent contradiction between use-value and value. This contradiction is externalized by Marx — in the beginning of *Capital*, Vol. I — to become

[3] See, for instance, *Osnovnoj ekonomičiskoj zakon socializma* (1978), 6.

market exchange or value-form. The next transition from value-form leads to capital, that is self-increasing value. Capital, therefore, is the category of the basic capitalist production relation, the relation between the capitalist and the wage-worker (and that of different capitalists to one another). Producing surplus-value is the BEL of capitalism showing a) the basic contradiction of capitalism, b) its central dynamics and also c) the goal of production: increasing surplus-value. Finally, using the concept of capital, one may derive various production relations.

The above is an extremely crude sketch of the logic of Marx's *Capital* as understood in Marxism-Leninism. During the last 15—20 years, an enormous amount of literature has accumulated on these questions, much of it among Western Marxists, but some among their Soviet colleagues. Many topics have been clarified, while others still await their assessment. Typically, Soviet scholars see more self-evidency in the Marxian heritage than their Western colleagues do. The official status of Marxism-Leninism, signified also by its use in general education and as a general scientific model, has encouraged a schematic (that is systematic and elementary) and a begging-the-question attitude. Without going over to a general discussion of the nature of Soviet Marxism — the task of this work is much narrower — some evident points have to be made.

Contrary to Marxist-Leninist treatises, Marx's analysis in *Capital* is not a clear-cut system. He does not have a specified hierarchy of economic categories. Thus, the concept of BEL does not appear in Marx. Its Marxian legitimacy is based on Marx having used the expressions of "the economic law of movement of modern society" or "the absolute law" of capitalism. Indeed, it should be obvious that as far as Classical Political Economy is production oriented (and Neoclassical economics market oriented), the analysis revolving around surplus value is the core of Marx's theory of capitalism. Even admitting this, the point remains that talking of BEL leads all too easily to rigid schemes.

A possible rational core of the Soviet practice of talking of BEL is pointed out by the leading Soviet philosopher V. G. Afanas'ev. He distinguishes between functional and developmental laws.[4] BEL is functional; it is a law of movement within a given societal quality, valid for the whole time range covered by a given mode of production. Thus BEL should bring foreward the basic quality of the society whatever its phase of development. The BEL of socialism should thus be as valid for the 1940's as for the 1980's. Furthermore, in the same way as any functional law — like that of class struggle, to use Afanas'ev's example — BEL does not bring about revolutionary changes. It is something keeping the society together, forming its basic structure.

Afanas'ev's distinction is useful in partly delineating the requirements set upon the basic law in Marxism-Leninism. Basically, if we overlook the role BEL has in the enumeration and classification of the economic laws so dear to Marxism-Leni-

[4] Afanas'ev, V. (1980): *Sistemnost' i obščestvo*, 137—149.

nism and so alien to many other Marxists, few of them would deny — in this time of Haug and Hirsch in Marxist theory — the following characterization with regard to the capital relation in capitalist society:

> The specific role of the basic law as the most important objective regulator of production is reflected in the fact that it influences all sides of socio-economic development: technical progress, growth and structure of production, development of production relations. There is no socioeconomic process that has not been influenced to some degree by the regulatory position of the basic law. Otherwise, the category of the basic law would be without real sense.[5]

It remains to be seen how well these requirements have been fulfilled in the Soviet political economy of socialism.

4.2. *The objective goal of production*

In a wide sense, BEL is also said to express the objective goal of production in a given mode of production. The first possibility of understanding in which sense producing surplus-value is the goal of capitalist production is the Hegelian interpretation: capital itself is an active subject.[6] The other possibility seems to fit the economists' ways of thinking better: the carriers of the capital relation have such positions within the social structures that in pursuing their subjective goals (for instance, maximizing profits) they cannot help participating in surplus-value production even they have never heard of such a thing.

Does this way of thinking carry over to socialism? There has been discussion about the appropriateness of talking of the objective goal of production in socialism, which is a consciously planned and guided society. Rumjancev and Ožerel'ev — among others — have denied the possibility of mentioning a goal of production when formulating the basic economic law of socialism (BELS).[7] The most that one can say, they assert, is that the goal is objectively conditioned (obuslovlena). This view, however, is not generally accepted. Thus the basic modern monograph on BELS, edited by Čerkovec and published under the name of the Institute of Economics of the Academy of Sciences,[8] rejects the point of view of Rumjancev

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[5] *Osnovnoj* ... (1978), op.cit., 23. In fact, as those knowledgeable in modern Marxism will notice, this characterization is quite radical — denying as it does the existence of any autonomous spheres of activity in capitalism — but this is not a point to be pursued here.

[6] The now classical example is Reichelt, H. (1971): *Zur logischen Struktur des Kapitalbegriffs bei Karl Marx.*

[7] Rumjancev, A. (1969): *Problemy sovremennoj nauki ob obščestve*, 192; Ožerel'ev, O. (1973): *Osnovnoj ekonomičeskij zakon socializma i ego ispol'zovanie v upravlenii narodnym khozjajstvom*, 6—8.

[8] *Osnovnoj* ... (1978), op.cit., 139—145.

and Ožerel'ev as mixing together the inherent objective goal of an economic system and the goals set by the planning subject. The latter are subjective reflections of the objective world and cannot, therefore, be a part of any law. Čerkovec asserts that the form x — the inherent goal of an economic system — is part of the basic law though he notes that not all economists — like Jakov Kronrod, the critic of SOFE — accept even this. Thus we here have one more example of the multitude of opinions within current Soviet political economy as well of the fact that no means of reaching a common conclusion seem to be available.

The mainstream Marxist-Leninist analysis proceeds from the postulate that Marx's analysis in *Capital* is the proper model for BELS also as far as the goal of production is concerned.[9] This postulate is sometimes corroborated by references either to systems thinking or to biology. The former case is treated below (p. 173), while the case of the latter can be briefly analysed here.

In an attempt interesting for its clarity, Čerkovec tries to clarify the idea of an objective goal by making an analogy with organic evolution, where only those mutations tenable with regard to the principle of selection survive. From this idea, Čerkovec deduced "the well-known goal-orientedness" of evolution.

> In the same way also in the movement of economic systems, those deviations that are opposed to the realization of the basic properties of the system are not stabilized in the mechanism of reproduction and appear only sporadically. There is, so to say, a competition of variants of economic development, and that one prevails which best secures the realization of the given essence. Therefore, the essence, which is best seen in the basic production relation, appears as the determining 'goal-orientedness' in the functioning of the economy, as a stable objective orientedness of all its movement, as an 'internal goal' of the system, which is realized in the process of its self-development.[10]

This argument is very weak. It relies on a very problematic interpretation of organic evolution as being goal-oriented, while it seems extremely difficult to give this goal an interpretation differing from evolution itself.[11] Secondly, no reasons are given for regarding organic evolution as a fitting analogy for social development. Čerkovec's argument seems to bring foreward only the functionality of evolution, while, in fact, organic evolution is opportunistic: there is no perspective planning in nature. Finally — and this might be the weightiest counter-argument of all — no mechanism for creating and selecting among the variants is given by Čerkovec.

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[9] See the argumentation in Makarov, M. (1977): *Kategorija "cel'" v marksistkoj filosofii.* Čerkovec relies on the philosophical arguments of Makarov.

[10] *Osnovnoj* ... (1978), op.cit., 137—138.

[11] In Soviet philosophy the notion of evolution as a goal-oriented process seems to prevail. Though teleologists also exist among Western biologists, what is probably the prevailing view is expressed by one of the founders of modern evolutionary theory as follows: "It is illegitimate to describe evolutionary processes or trends as goal directed (teleological)." Mayr, E. (1976): *Evolution and the Diversity of Life*, 403.

This mechanism is well-known for organic evolution. The same role is played by competition in Marx's theory of capitalism. Thus, not only is Čerkovec's argumentation through the theory of evolution not valid, but the absence of a mechanism implementing BELS warns about using Marx' theory as the model of the political economy of socialism. But to assess this more wholly, a better picture of BELS in Soviet thinking is needed.

4.3. *The history of the basic economic law of socialism*

In Soviet literature, it is nowadays customary to criticize the economists of the early Soviet Union for not understanding that the basic law must be applicable to all the phases of the communist mode of production, both to the transition period, socialism as well as to communism proper. It is maintained, therefore, that these writers were wrong in looking for a specific basic law or regulator of the transition period.[12] Given the Soviet canon of using the theory of Marx as a model, these criticisms are by no means faultness,[13] but anyway the early proposals — the plan, the proletarian dictatorship, the law of value or the two regulators of Preobraženskij — are unanimously dismissed nowadays. One early contribution of Lev Gatovskij, though, seems well worth noting even now. In an article published in 1932, he wanted to connect the basic law with the basic contradiction of the communist mode of production. BEL had to be a concentrated expression of "the specificity of the unity of politics and economics, the goal of economic development to which the division of social labour is subordinated".[14] Gatovskij's concrete proposal — the proletarian dictatorship as the basic law — was not as important as his approach which compares favourably with the overly functionalist and harmonious later approaches.

The idea of BELS was largely forgotten from the late 1930's till the early 1950's. The new model of science, Stalin's DIAMAT and HISTOMAT enumerated the four laws of dialectics and the three specific features of production, but found no place for the dialectics of the concrete and the abstract. Marx's theory was seen as just

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12 See *Osnovnoj* ... (1978), op.cit., 31—47; *Geschichte der politischen Ökonomie des Sozialismus* (1972), 103—115.

13 This is seen supposing that arguments by analogy to Marx's theory of capitalism are valid. For Marx the transition from feodalism to capitalism was not a process governed by the laws of capitalism, but a period creating the preconditions of capitalism. Why should this be different in the case of socialism?

14 Cited in *Osnovnoj* ... (1978), op.cit., 44—45 and in *Geschichte* ... (1972), op.cit., 110. For some reasons Gatovskij, when editing this article for reprinting (see Gatovskij, L. (1979): *Voprosy razvitija političeskoj ekonomii socializma*), left these sentences out. It should be pointed out that like many others, Gatovskij too made no clear-cut difference between notions concerning the transition period and those concerning socialism in the early 1930's. Thus he wrote in 1932 that the political economy of socialism could already be written.

one example of applying dialectics to concrete material. The fundamental philosophical monographs of the period do not include categories like the departure relation or the basic production relation, BEL or rising from the abstract to the concrete.[15] Solodovnikov, who lists numerous topics of discussion while painting a rosy picture of the Institute of Economics in the late 1940's (see above, p. 70), does not mention the relation of the different economic laws at all. The economists did "find" several laws, but they were always discussed separatedly. While the term of BEL was sometimes used, it was as a comparison to the law of value. Planning was thus sometimes called BELS.

BELS was one of those things that Stalin added to the political economy of socialism in 1951 (above, p. 71). Relying presumably of the utterances of Engels (above, p. 23) and Lenin (above, p. 38), Stalin formulated BELS as "satisfying as perfectly as possible the ever-increasing material and cultural needs of the whole society by un-interruptedly increasing social production and ever more perfecting it on the basis of the most developed techniques".[16] This was to be the point of departure for all later theorizing about BELS.

Stalin's formulation is repeated in the textbook of 1954[17] and, for instance, in a reference work of political economy published in 1958.[18] The CPSU programme of 1961 changed Stalin's formulation in just one respect, which is nonetheless interesting. As to the subject of needs, "people" (naroda) has been substituted for the more impersonal "society". It is persons, thus, who are thought to have needs. The constitution of 1977 does not use the term BEL, but actually repeats its substance when talking of the goal of production. (Contrary to Kronrod, the goal does exist (above, p. 159)!) The encyclopedia of political economy published in 1979 almost repeats Stalin in defining BELS as "the law of motion of socialist society, the essence of which is the securement of the most perfect satisfaction of the needs and the well-rounded development of all members of the society by means of uninterrupted growth and the development of socialist production".[19]

The first thing to note is the basic continuity over the thirty years of Stalinist and Post-Stalinist ideology. But perhaps the changes discernable are equally interesting. While the subject of needs in Stalin was "society", now it is "all members of society" or "people". The implicit stress on individuals as the particles of society

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15 Rozental', M. (1951): *Marksistkij dialektičeskij metod*; *Kratkij filosofskij slovar'* (1951).

16 Stalin, J. (1952): *Ekonomičeskie problemy socializma v SSSR*, 94—95. The models used by Stalin probably are Engels, F. (1891): Einleitung zu Marx' Lohnarbeit und Kapital. *MEW* 22:203; Lenin, V. (1902): Zamečanija na vtoroj proekt programmy Plekhanova. *PSS* 2: 232. According to Katsenelinboigen (Katsenelinboigen, A. (1980): *Soviet Economic Thought and Political Power in the USSR*, 21) A. M. Rumjancev gave Stalin the idea for BELS.

17 *Političeskaja ekonomija* ... (1955), 416.

18 *Kratkij ekonomičeskij slovar'* (1958), 220.

19 *Ekonomičeskaja enciklopedija* (1974—80), Tom. 3, 192.

is evident. Furthermore, while just the satisfaction of needs was stressed earlier, now it is complemented with a more dynamic "well-rounded development of people". Neither is developing socialist production limited to using "the most advanced techniques" as in Stalin. Implicitly, room is given to questions of organization and participation.

During the thirty-odd years of its life, BELS has been a subject of almost uninterrupted debates. The first wave of discussion was in 1958—1959. Many new formulations were offered without going beyond Stalin's problem of defining BELS as a law separated from all the others.[20] As pointed out above (p. 77), in 1961 a well-known political economist outspokenly insisted that the idea of BEL as somehow more fundamental than all the other laws was more or less Stalin's *idee fixe* and should be forgotten. Leont'ev questioned how some laws could be thought to be more important than others. Even though the same point was also made by Evgenij Varga,[21] Khrushchev's main ideologist Il'ičev condemned Leont'ev's idea as being destructive to all the political economy of socialism. Since that BELS has been an integral part of this doctrine. Discussions soon shifted to asking for the relation between BELS and other laws, a question really raised by Leont'ev.

4.4. *The basic relation of production, the basic law and the basic contradiction*

In Stalin's writings as well as in the textbook of 1954, a number of economic laws were listed separatedly, without any logical connection. But if the world is a structured totality, shouldn't the laws reflecting it also form a "system". The idea of using BELS as the point around which this system of laws would be created was soon aired. In this respect, Leont'ev's stand was soon understood to contain a potentially dangerous ideological implication:

> Denying the right of existence of the basic economic law of socialism means denying that the economic laws functioning in socialist society and presenting the totality of socialist production relations as the economic base of socialist society form a unified system.[22]

Building a system of economic laws was thus important not only for coherence, but also to ward off the suspicion that everything really existing was perhaps not real socialism. This was the time of the Sino-Soviet rift, and both countries were trying to show their socialism as the orthodox one.

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[20] *Geschichte* ... (1972), op.cit., 116.

[21] Kusminow, I. (1971, 1974): *Abriss der Politischen Ökonomie des Sozialismus — Methodologie*, 216—220.

[22] Atlas, M. et al. (1962): Ob osnovnom ekonomičeskom zakone. *VE* 1, 38—52, cited on p. 51.

But how should the system of economic laws be built? Stalinist Histomat and Diamat were of little help, consisting as they do of an enumeration of principles. The answer was found in the Hegelian dialectics of the abstract and the concrete in Marx's *Capital.* This earlier totally neglected approach — for Stalin, Hegel had been the philosopher of the aristocratic reaction against the French revolution — was now understood as the centrepiece of Marx's method,[23] and the opinion that "also a general methodology of political economy applicable to all social formations has been presented in *Capital*"[24] was soon generally accepted. The main distinguishing feature of the second generation of the Soviet Post-Stalinist textbooks of political economy — first published in the early to mid-1960's and basically still in use — was just this stress on the system of economic laws.

The controversiality of this approach of stretching Marx's method from a criticism of capitalism to a positive theory of socialism should be clear (see above, p. 18). The question was raised in Soviet literature in the mid-1960's by the elderly K. V. Ostrovitjanov and by J. Kronrod.[25] Their arguments were based on the unity of the logical and the historical. In the case of capitalism, the going over to more concrete categories corresponds to a historical process. In the case of socialism, argued Ostrovitjanov and Kronrod, there could be no corresponding relation between a simple, both logically and historically prior category of departure and the basic relation of production. Contrary to capitalism, socialism was the result of a conscious revolution and, therefore, in a sense was born ready: the basic production relation exists from the very beginning. Therefore, the unity of the historical and the logical could not hold for scocialism, and Marx's method was not applicable in the political economy of socialism.

Politically, the stand of Ostrovitjanov and Kronrod has the implication of glorifying the Stalinist past. Without going into the details of their arguments, it is a fact that they received little support. Indeed, N. S. Cagolov, the veteran political economist of MGU, recently saw one of the most important recent achievements of political economy as being in the disappearance of such viewpoints. With the acceptance of the generality of Marx's method, political economy — in the wide sense, as it used to be said — has finally become a "unified science, with one object and

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[23] See, for example, Rozental', M. (1955): *Voprosy dialektiki v "Kapitale" Marksa* and compare it to his earlier book Rozental', M. (1951): op.cit.

[24] These are the words of Abel Aganbegjan — who thus presumably never shared the opinions of his CEMI colleagues on an axiomatic economic theory of socialism — in a *Voprosy ekonomiki* discussion (*VE* 1962:6, 68).

[25] Ostrovitjanov, K. (1964): Metodologičeskie voprosy političeskoj ekonomiki socializma. *VE* 9, 111—128; Kronrod, Ja. (1964): K voprosy o logike političeskoj ekonomii socializma. *VE* 12, 74—85. The counterproposal of these scholars was weak, as they proposed the socialist form of ownership, which was born in the revolution, as the basic category of the political economy of socialism. But here ownership can only be understood in a legal, not in an economic sense. On this point see Kusminow, I. (1971, 1974): op.cit., 143—144 and Čerkovec, V. (1965): O naučnoj sisteme kursa političeskoj ekonomii. *VE* 3, 83—94.

one method".[26] As to methodology, Cagolov may be right or wrong. The example of Šatalin's book of 1982[27] seems to show that he is wrong, and this book is analysed in some detail below. Of immediate interest here is the fact that all the numerous attempts to gain agreement on the basic categories of the political economy of socialism have miscarried. A short survey of some disagreements shows this beyond any doubt.

Social ownership of the means of production is by far the most popular candidate as the conceptual point of departure of the political economy of socialism. Thus, "the economic character of human relations depends on the question of who owns the tools and objects of labour", says the textbook written for Party universities under the supervision of G. A. Kozlov.[28] Another important textbook, written under the supervision of academician A. M. Rumjancev and accepted for use in universities and faculties of economics, takes the ownership of the means of production both as the point of departure in study and as the main specific feature of socialism.[29] The present Soviet constitution calls it the basis of the Soviet economic system.

Popular as this approach is, it is open to criticism. A fundamental and seemingly correct line of criticism is as follows. "Ownership" can be talked about either in a formal legal sense or in an economic sense, such as the actual rights of disposal. But if the latter use is followed, as Rumjancev and Kozlov say they do, is "ownership" then not simply a synonym or short-hand for production relations in general? In this case, how can "ownership" be used as the point of departure of study without circular reasoning?[30] Furthermore, these textbooks do not adhere to the basic Marxian distinction between the mode of research and the mode of presentation. They see no fundamental difference between these two procedures. This makes the ownership approach even more difficult to accept, as "ownership" is largely taken to be given.[31]

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[26] Cagolov, N. (1980): "Kapital" K. Marksa i soveršenstvovanie logiki i struktury kursa političeskoj ekonomii socializma.

[27] Šatalin, S. (1982): *Funkcionirovanie ekonomiki razvitogo socializma.* Also see the Ostrovitjanovian comments of Fainberg and Kozlova in *VF* 1979:12, 136—137. Šatalin's ideas are analyzed in the next chapter.

[28] *Političeskaja ekonomija* ... (1970), 40.

[29] *Političeskaja ekonomija* ... (1979), 64—65.

[30] This approach has been criticized by Kusminov and also by Pokrytan, referred to below. Interestingly, in the course of their criticisms both authors cite not the above-mentioned textbooks but Jakov Kronrod, who also shares this approach.

[31] Roughly, the mode of research (Forschungsweise) is the way in which Marx developed his theory on the basis of earlier theories and of empirical information, while the mode of presentation (Darstellungsweise) is the form in which this theory is put forward in *Capital.* Some Soviet writers have maintained that one reason for the poor level of Soviet political economy is in using Marx's mode of presentation as the mode of research. This implies claiming that Soviet political economy is a *Glassperlenspiel* isolated both from facts and

Finally, if Marx's theory is taken as the model to be followed, the lack of a distinction between the relation of departure and the basic production relation is certainly a problem.

Though the ownership approach of Rumjancev and Kozlov predominates, others also exist. The textbook used at MGU — written under the supervision of N. A. Cagolov — takes the planned character of socialist production to be both the logical and historical point of departure of socialist production relations. It is also seen to be the general "form of motion" of socialist production.[32] A third opinion is that of the late I. I. Kuzminov, one of the coauthors of the 1954 textbook: the relations of the comradely help and the cooperation of the producers are the basic relation and the collectivity of production the relation of departure.[33] A fourth opinion belongs to A. K. Pokrytan: the direct social character of labour is the category of departure while the complete equality of producers is the basic relation.[34]

This list could be continued, but the point has been already proven: all the basic categories of the political economy of socialism are still open to dispute. In Soviet thinking, this is not seen as the normal state of social science but as an anomaly to be corrected.

To follow the analogy with Marx's theory somewhat further, opinions differ as to whether a basic contradiction of socialism exists or not. Kuzminov's answer is negative. The concept of a basic contradiction is only fit for antagonistic societies. The Marxian idea of development through contradictions should not be made an absolute. In socialism, Kuzminov claims, unity becomes a mighty resource.[35]

Most other economists do find a basic contradiction in socialism. Some see it in the relations between the state and the "relatively independent" enterprises. Others

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theoretical criticism. Not surprisingly, these allegations are dismissed in a basic methodology (*Metod političeskoj ekonomii* ... (1980), 177—192). It also claims, as if to show how right these critics are, that no real difference exists between the modes of research and presentation. But, "the active work done during the last two or three decades in creating the courses of political economy and in modernizing its teaching have taken the basic forces of scholars and university teachers. The result was the well-known identification of the method of research and the method of presentation, and sometimes the substitution of the first by the second. One of the necessary preconditions for a further creative development of the political economy is the bypassing of such ideas and the creation of a clear understanding of the common and the specific in the methods of research and presentation". Abalkin, L. (1981): *Dialektika socialističeskoj ekonomiki*, 37—38.

32 *Lehrbuch Politische Ökonomie Sozialismus* (1970), 119. The position of this textbook is quite marginal. It has not been reprinted for a long time and even the textbook used in the science faculties of the Moscow State University (*Političeskaja ekonomija (kurs lekcii)* (1970)) shares the majority view, though its editor earlier defended Cagolov's views.

33 Kusminow, I. (1971, 1974): op.cit.

34 Pokrytan, A. (1971): *Produktionsverhältnisse und ökonomische Gesetze des Sozialismus.*

35 Kusminow, I. (1971, 1974): op.cit., 66—76.

object that this state of affairs only holds for socialism, while a basic contradiction should be common to the whole communist mode of production. The contradiction between ever-increasing needs and scarce resources is proposed as the basic one.

The existence of scarcity is hardly specific to communism, it might be objected. Doesn't this approach, furthermore, mean a return to the thinking of the early 1930's, when resource constraints were seen as the only objective laws of socialism? D. M. Kazakevič, the Novosibirsk mathematical economists who now writes political economy, lays emphasis on another aspect. For him, scarcity is a dialectical contradiction. This means that not only do resources limit the possible satisfaction of needs, but there is also a possibility of the existing level of need satisfaction constraining production possibilities. This is an example of how topical problems may be discussed within an abstract political economic framework.[36]

BELS is usually seen as an expression of the basic production relation. Here the argumentation typically leaves much to be desired. Kozlov's textbook is perhaps the muddiest of all. It simply asserts that with social ownership of the means of production (and, therefore, with no exploiting class), there must be a proper principle of distribution (in socialism according to work, in communism according to needs), everybody works and the objective goal of production is that given by the basic law.[37] Here the argumentation is circular: if people value satisfying their needs, there can be no social ownership without production being geared to that goal.

Rumjancev's textbook, while sharing Kozlov's basic ideas, is clearer in making a division between the possibility and necessity of the basic law. The former — so Rumjancev asserts — is given by the existing high level of productive forces and by the interest of the producer-owners in increasing the product. The latter is proved by a double reference to authorities. The book cites Lenin: "Only socialism gives the possibility of greatly enlarging production and subordinating social production and distribution to scientific principles, to best making the life of toilers easy, to giving them the possibility of satisfying needs. Only socialism can do this. And we know that it must do it, and in understanding this lies the whole difficulty and truth of Marxism".[38] Thus either BELS objectively exists in the Soviet Union, or the country is not socialist, or Lenin and all Marxism is false. Rumjancev really leaves but a few alternatives to his Soviet readers.

For Cagolov, as noted above, planning is the basis of socialism. He also thinks that no law of value can exist in the communist mode of production. His arguments for BELS are based on communism being "an association of immediate producers freed from exploitation". Here, no contradictions between social and individual

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36 Kazakevič, D. (1980): *Očerki teorii socialističeskoj ekonomiki*, 34—38.

37 *Političeskaja ekonomija*... (1970), op.cit., 55—58.

38 Lenin, V.: *PSS* 36, 381 as cited in *Političeskaja ekonomija*... (1979), op.cit., 85.

interests can exist. Therefore, each and every producer has a direct interest in increasing production, serving as it does the toilers' needs. For further support, Cagolov cites not only Lenin and Plekhanov, but also Owen, Fourier and Černyševskij, all of whom had foreseen the character of socialism.[39] Obviously, these citations cannot prove anything about the present-day world.

I. I. Kuzminov offers a longish criticism of other political economists' arguments for BELS. While others may use even ten printed lines in defining BELS, for Kuzminov it is simply "collective, social production for the common welfare".[40] But he does not actually have any arguments of his own for BELS. The same is also true of Pokrytan, whose BELS is the "well-rounded development of personality", the goal as well as a medium of production.[41]

So far our vain search for reasonable arguments for BELS has been confined to textbooks and general monographs. Perhaps something of greater value can be found in special literature. The monograph edited by Čerkovec (referred to above, p. 158) is the most important contribution in this field to appear in recent years.[42] Its general approach is Kuzminovian: "the directly social collectivity of producers" is taken to be the basic production relation of socialism, the first phase of the communist mode of production. Essentially, Čerkovec argues, the Soviet society is already an association of immediate producers, and no essential contradiction can exist between the interests of the association and its members. Čerkovec claims that Lenin's characterization of the socialist society as being one factory is by no means just a metaphor. It is the correct characterization of the essence of socialism, though so far this essence cannot have realized itself fully. Basically the association — that is, the Soviet Union — is one subject directing production according to its needs.

According to one estimate, more than thirty different formulations of the basic law exist.[43] It is not necessary to analyse them all to be able to conclude that Soviet political economy offers no cogent reasons for believing in BELS. Above, two main arguments were considered. One is based on the ownership approach and is either circular or founded on authority. The other sees socialist society as one subject serving its needs. The importance of BELS in Soviet political economy must be ideological: it is an assurance of really existing socialism being real socialism. This is the framework into which BELS integrates the various other economic laws of socialism in its functionalist way.

So far no attention has been given to any empirical backing possibly offered for BELS. Naturally, several authors write of the history of socialist countries as

39 *Lehrbuch* ... (1970), op.cit., 137—145.
40 Kusminow, I. (1971, 1974): op.cit., 234.
41 Pokrytan, A. (1971): op.cit., 137.
42 *Osnovnoj* ... (1978), op.cit.
43 See Tittel, G. (1975): Zum Ziel der Produktion im Sozialismus.

having proved BELS.[44] The point, however, is that the existence of BELS as it is formulated cannot be proved or disproved empirically. Like other laws of Marxism, it is a tendency law with numerous factors influencing its realization.[45]

The case of BELS thus affirms the general characterization of Nuti: "These so-called 'economic laws' are dogmatic and catchword-like generic utterances about the goal and functioning of socialist economy."[46] Even then, BELS is not uninteresting. The changes in its formulations from Stalin to Pokrytan reflect, no doubt, a more general change in social thinking. The example of Kazakevič showed how even such an abstract law can be used to make an important point (though obviously BELS is not the easiest way of making that point). Generally, the increasing attention given to BELS is evidence of pressure to change the priorities of economic policies towards increasing consumption. In this perspective, BELS is a Stalinist invention in political economy put into anti-Stalinist use.

Before going into the economic policy implications of BELS, the third phase in discussing BELS should be noted. While in the first phase BELS was basically a way of saying that the Soviet Union is a Good Society and in the second phase it has been used to integrate the laws of political economy into a system, in the third phase — largely in the 1970's — the concentration has been on the way in which this law functions in the economy. The basic innovation here has been to argue that though economic laws are the same in all the phases of a mode of production, they appear in different ways in early socialism as opposed to developed socialism. In developed socialism, the relation between production and its final goal is taken to be more immediate than before. For instance, Ignatovskij and Ruban write that the development of personality becomes a more important part of this goal than for instance the growth of production.[47] This interpretation kills several birds with one stone. It is possible to argue for changes in policies (or to apologize for declining growth) without directly challenging the former priorities. It is the times, not the goal, that have changed.[48] Other writers go even further and maintain that even the laws themselves change with development within a given

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44 Dunaeva, V. (1976): *Ekonomičeskie zakony socializma i problemy narodno-khozjajstvennogo optimuma*, 7—22.

45 On tendency laws see Suslov, I. (1974): *Metodologija ekonomičeskaja issledovanija*, 59. As an example of how the basic law is cushioned against empirical arguments see Tittel, G. (1975): op.cit., who lists six factors influencing the functioning of this law, including the international and military position of the country.

46 Nuti, D. (1973): The Political Economy of Socialism — Orthodoxy and Change in Polish Texts. *SovStu* XXV:2, 244—270, cited on p. 248.

47 Ignatovskij, P. (1979): Metodologičeskie voprosy razvitija političeskoj ekonomii socializma. *VE* 8, 9—17; Ruban, A. (1979): Ekonomičeskie zakony v razvitom socialističeskom obščestve. *VE* 6, 13—21.

48 Also see Evans, A. (1977): Developed Socialism in Soviet Ideology. *SovStu* XXIX:3, 409—428.

mode of production.[49] Thus, a remarkably parallel discussion to that on capitalism — monopoly capitalism — state monopoly capitalism in the political economy of capitalism is going on in the political economy of socialism.

An important step along this road has been the granting of the rights of the category of social utility, to be discussed below. While the use of this term was often seen as proof of dangerous Bourgeois influence in the 1960's, in 1978 the leading political economists Rumjancev, Kozlov and Atlas wrote in a programmatic article:

> The founders of Scientic Communism showed that this category is a category of the communist mode of production... Thus the tasks (of economists — P.S.) are concentrated in studying the category itself and in selecting a hierarchy of usefulness on every phase of historical developmena, or in selecting the degree of the social usefulness of products. Therein, analysing the concept of the social utility of products and the degree of the usefulness of each product is the task of research and economic planning.[50]

Whatever the political economy of socialism is, it is not unchanging.

4.5. *Quantitative expressions for the basic economic law*

The emphasis on the system of economic laws was the main characteristic of the second phase of discussions on BELS. Another characteristic, also an analogy from the theory of Marx, was the search for quantitative expressions of BELS that would correspond to surplus value in capitalism.[51] Here as well, there were numerous proposals.

1. As early as in the beginning of the 1960's, Kosodejev, Smolin and others proposed surplus value for this role. As Marx already foresaw in his critique of the Gotha programme, in socialism surplus product is used for investment, reserves and unproductive activities. Maximizing surplus value would thus serve socialism well.

Not surprisingly, this proposal was torpedoed. It made capitalism and socialism seem all too similar, created a barrier between wages and social consumption and included in the objective function items like defense and general administration which are not to be maximized. The last point was made by, among others, A. L. Vainštein of CEMI.[52]

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[49] See, for instance, *Aktual'nye problemy planomernogo razvitija narodnogo khozjajstva* (1980), 212—221.

[50] Rumjancev, A.—Kozlov, G.—Atlas, M. (1978): Metodologičeskie problemy političeskoj ekonomii socializma. *VE* 9, 3—12, cited on p. 5. Also see Medvedev, V. (1976): *Socialističeskoe proizvodstvo*, 163.

[51] The following account partly drawns on *Ökonomische Gesetze in der Diskussion* (1974).

[52] Vainštein, A. (1970): Kriterii optimal'nogo razvitija socialističeskogo narodnogo khozjajstva. *VE* 5, 120—129.

2. In 1962 Aleksandr Notkin proposed national income, the sum of wages and surplus value in the productive sphere as the quantitative expression of BELS. This proposal has been shared by Khačaturov, Vladimirov, Kukuškin, Minč and others.[53] Kuzminov has echoed it in a different form as the relation of national income to the sum of constant and variable capital.[54]

This widely shared proposal has been criticized on two grounds. Some economists claim that leaving constant capital out of the objective would lead to a neglection of investments.[55] Trifonov, Lemel'ev, Kronrod and Čerkovec have proposed using gross product as the objective. (The natural counterargument is that this would encourage inefficiency.) The other criticism is the dependence of national income upon national accounting conventions.

3. Back in 1954 I. Vekua, causing well-known skirmishes, interpreted BELS as meaning increasing consumption. Then this Malenkovian proposal was condemned as being vulgar Marxist.[56] After that the proposal has been made again and again, but it always encounters opposition, too. Perhaps the most ingenious argument against "consumerism" is that of Rumjancev: the need in the means of production is among the needs of the toilers.[57]

4. A. M. Rumjancev and G. A. Kozlov,[58] the leading textbook authors, as well as V. N. Čerkovec[59] have proposed setting the relation between perfect and existing satisfaction of needs as the quantitative expression of BELS. Very probably, these ideas have been inspired by early SOFE (see above, p. 92). These proposals are an important step in the coming of the dynamism of needs — both theoretically, and, to a degree, empirically — to the attention of political economy.

5. Numerous other proposals have also been made, but enumerating them does not change the fact that political economy does not seem to have any means of selecting among all the different variants of the quantitative expression of BELS.

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53 Notkin, A. (1962): Obščestvennyj produkt i nacional'nyj dokhod v sisteme ekonomičeskikh kategorii socializma. *VE* 9, 31—46.

54 Kusminow, I. (1971, 1974): op.cit., 235. The Economic Research Institute of Gosplan has proposed this criterion with the extra constraint limiting (both up and downwards) the share of investments in national income. See Bačurin, A. (1977): *Planovo-ekonomičeskie metody upravlenija*, 105—116.

55 *Geschichte...* (1972), op.cit., 119.

56 Protiv revizii marksistko-leninskoj teorii vosproizvodstva (1955). *VE* 1, 15—25. The Vekua case seems to be the last in which an economic journal had to make an apology for publishing an unorthodox article.

57 *Političeskaja ekonomija...* (1979), op.cit., 85—86.

58 Rumjancev, A. (1968): Osnovnoj ekonomičeskij zakon socializma. *VE* 10, 3—20; Rumjancev, A. (1969): op.cit., 240—254. Also Kozlov, G. (1973): Ob osnovnom ekonomičeskom zakone v uslovijakh razvitogo socializma. *VE* 5, 3—16.

59 *Osnovnoj...* (1978); op.cit., 145—152.

By the early 1970's political economists had to recognize that their discussions on BELS had led to a dead end. As O. I. Ožerel'ev put it in 1973:

> So far many scholars have been pursuing general ponderings about the goal of socialist production without carefully studying its contents and role in the economic life of the country, and therefore the basic economic law has not been able to become the core of the political economy of socialism any more than the theoretical foundation upon which the theory of optimal functioning of the economy could be built.[60]

The structure of the economic sciences was widely discussed in the 1960's. Most political economists were not willing to delimit their work to the abstract general fundamentals. On the contrary, giving advice on economic policies was taken to be a task not only for the various concrete economic disciplines, but for political economy, too. One thing this would require was complementing abstract theoretizing about laws with analysing their mechanism of functioning and use.[61] This was the road out of the *cul-de-sac* that Ožerel'ev was also proposing.

These at empts have not met with great success. As one of the participants put it in a round table discussion in *Voprosy ekonomiki* in 1977: "Our economic science has in recent years quite rightly put forward the thesis that economic laws function as a system. But we have not advanced any further; it has not been laid bare what is concretely hidden behind that thesis."[62] This is true of the discussions on BELS, too. Being a basic law, it should imprint all social processes. But being as badly specified as it is, discussions on it necessarily cover everything and tell nothing. Basically, BELS in most cases still means that the Soviet Union is a Good Society.

4.6. *Social utility in political economy*

As mentioned above, by the late 1970's studying problems of social utility was seen as a central task of economists. Thus V. A. Medvedev, the Rector of the Academy of Social Sciences of the Central Committee of CPSU and a well-known political economist, wrote in 1982 that studying the utility estimates of consumption and investment goods was "one of the most serious and topical" tasks of political economy.[63]

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60 Ožerel'ev, O. (1973): op.cit., 7.

61 "Mechanism of functioning" usually refers to all the processes in which a given law expresses itself, while "mechanism of use" refers to conscious use, in the first place to planning.

62 Ispol'zovanie ekonomičeskikh zakonov v razvitom socialističeskom obščestve (1977). *VE* 1, 3—30, cited on p. 7. These are words of R. A. Belousov, a professor at the Academy of Social Sciences.

63 Medvedev, V. (1982): Aktual'nye voprosy ekonomičeskoj teorii socializma.

Discussing utility and use value has been historically connected with interpreting the labour theory of value. This doctrine has come in two basic variants (see above, p. 45). The technical version regards use value as a precondition but not a determinant of the magnitude of value. The social version, on the contrary, gives demand and thus utility some effect on value.[64]

As an exercise in Marxology, debates about these two versions are hindered by the notorious unclarity and contradictions in the relevant passages in *Capital*, Vol. III. This fact, the demise of the leading debaters in the Stalinist revolution as well as the logic of centralized planning led to a burial of the social version in the late 1930's. The situation was changing already in the 1950's. Thus the official textbook of 1954 asserted that in capitalism use values are produced just because accumulating surplus value requires that. In socialism, where BELS rules, use values have an independent and important position.[65] Production, it is claimed, is basically for producing use values.

BELS was thus one reason for reconsidering value theory. The writings of mathematical economists were another, and with respect to price theory, the need to assess present and earlier policies was obvious. As Šatalin and others have written:

> The requirement of taking note of social usefulness has always been directed against equating actual and socially necessary costs, against counting all past labour as socially necessary, against a one-sided way of specifying the economic interests of productive enterprises with no regard to the degree of the satisfaction of the social needs.[66]

The later increasingly socio-economic character of the goal set for economic development has further stressed the need to include social utility in economic theories.

Finding a Marxist-Leninist theory of social utility and use values has proved to be difficult. On one hand, as far as planning is for the sake of use values, such a theory would not only be Marxist orthodoxy, but also inherently necessary. On the other hand, the views of Bourgeois utility theory, so often condemned as subjectivist-psychological, individualistic, antisocial, and unhistorical, cannot be adopted. Not surprisingly, present-day Soviet political economy offers a wide array of different opinions.[67]

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64 The debates are surveyed in Manevič, V. (1975): *Razvitie teorii planovogo cenoobrazovanija v sovetskoj ekonomičeskoj literature.*

65 *Političeskaja ekonomija* ... (1955), 463.

66 Šatalin, S.—Grebennikov, V.—Pčelincev, O. (1978): Obščestvennaja poleznost' v sisteme ekonomičeskikh kategorii socializma, cited on p. 112.

67 The names referred to are examples taken from *Potrebitel'naja stoimost' produktov truda pri socializme* (1978). For a Soviet survey see Naučitel', M.—Smirnov, V. (1979): *Kategorija "poleznost'" v ekonomičeskikh teorijakh.*

1. That utilities of different goods can only be compared when the goods in question serve the fulfillment of the same need is the opinion of Čerkovec, Paškov, Lewin and others. No general measure of social utility exists according to this stream of thought.

2. Utility functions can and must be built using consumption data. Among others Rumjancev and Val'tukh assert that these would not be the asocial subjective utilities of Bourgeois theory, but socially determined objective utilities.

3. Utility is a feature common to all modes of production, a necessary attribute of purposive action. As such, this concept is too abstract for practical purposes (Pokrytan).

4. Social utility as an independent category does exist. It can be used in assessing production provided that several existing practical problems are overcome (Šukhov, Šekhet, Kurovskij). This has also been the traditional viewpoint of SOFE.

4.7. *Systems theory and systems thinking*

It can be concluded that the political economy of socialism offers no cogent reasons for believing in the objective existence of BELS. It can thus give no support to the non-instrumentalist adoption of the optimizing paradigm by SOFE. This is basically because the political economy of socialism is a typical pseudo-science: it has, for example, no procedure for distinguishing between true and false sentences.[68] As has been seen above, the destinies of BELS within this discourse have been determined by other factors than attainment of a true explanation of the Soviet economy.

There is another source of SOFE that is relevant here. It is systems theory with its emphasis on goal-oriented systems. In Soviet literature, a division is often made between the systems theory (obščaja teorija sistem), also called systems analysis (sistemnyj analiz), on one hand, and the systems approach (sistemnyj podkhod), on the other. The former refers to a more strictly cybernetic approach than the latter. While information and guidance are the keywords of the former, the latter is characterized by holism. In one of his books, Nikolai Fedorenko writes:

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[68] In characterizing pseudoscience — that is nonscience presenting itself as science — Bunge enumerates ten typical traits of it. Among them, PES easily fulfills the following: pseudoscience contains elements unchanging with time, has a modest formal background, contains no certifiable real entities within its domain, contains numerous untestable claims, is not primarily cognitive-oriented and uses uncheckable methods. On the other hand, the primarily ideological nature of PES sets it apart from the typically practically oriented pseudosciences. Seeing PES as a pseudoscience does not make it unimportant. Neither does it invalidate internalist criticism. Thus, the following pseudosciences mentioned by Bunge are obviously both important and subject to internal rules of discourse: theology, literary criticism, applied catastrophe theory and psychoanalysis. See Bunge, M. (1982): Demarcating Science from Pseudoscience. *Fundamenta Scientiae* III:3—4, 369—388.

> ...a methodologically correct approach to the problem of optimal functioning of the national economy requires above all a monistic systems approach to every aspect of social reproduction. This means that the economic regularities operating under socialism must be considered from a single standpoint, which helps, with a minimum number of *a priori* assumptions, to construct and substantiate a system of optimal planning and control of the national economy. This is extremely important. One must not allow any substitution of empiricism for the conceptual-objective systems approach or of any eclecticism for the dialectics of socialist economic development.[69]

A call for the systems approach is thus, above all, a call for monistic theoretical analysis. In the SOFE of the 1960's, this approach meant attempts at axiomatism. In the political economy of the 1970's, BELS was thought to offer the possibility for the systems approach. In this perspective, it is understandable why Marx and Engels can be regarded as the pioneers of the systems approach. After all, they had — to cite a source from CEMI — "thoroughly proved the thesis of the dialectical unity of the material world, of the interdependence and mutual reciprocity of all processes of social life".[70]

The distinction between systems theory and the systems approach is not original in Soviet literature. It has been made by C. West Churchman, who sees the roots of systems approach not only in the 19th century, but also in primitive man.[71] But in the Soviet Union the systems approach has an exceptionally wide following. The philosopher and editor of Pravda V. G. Afanas'ev begins one of his numerous books on this approach by noting that systems terms are among the most widely used and fashionable in contemporary science.[72] But the systems approach is not only a fad, but an approach or a methodological world view made necessary by the needs of science. For Afanas'ev — as well as to many Western scholars — the systems approach is not a science; it is an approach.

Therefore, for Afanas'ev — here taken to be a representative Soviet philosopher — the systems approach is a moment of Marxist dialectics.[73] It has nothing

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69 Fedorenko, N. (1974b): *Optimal Functioning System for a Socialist Economy*, 140—141.

70 *Matematika i kibernetika v ekonomike* (1975), 517.

71 Churchman, C. (1979): *The Systems Approach and Its Enemies*, 32.

72 Afanas'ev, V. (1980): op.cit., 3.

73 The emphasis here laid on the flexibility of both dialectical Marxism and the systems approach differs substantially from that of Susiluoto (Susiluoto, I. (1982): *The Origins and Development of Systems Thinking in the Soviet Union*). He is looking for differences between dialectics and systems thinking, and finds them in the approaches of equilibrium and contradiction. The point of view of this study is economics, and in Susiluoto's thinking all economics would be systems thinking. Furthermore, Susiluoto does not make the standard Soviet division between systems theory and systems thinking. His approach would, therefore, allow for but little possibilities for analysing the common features of Soviet political economy and mathematical economics.

independent to say about the goal-orientedness of the society. This is the domain of other parts of Marxist theory, such as BELS. On a general level, the goal-orientedness of society seems to Afanas'ev to be a self-evident fact following from the character of conscious, goal-oriented human activity. On a more practical level, his thinking has gone through the same phases as Soviet thinking in general, from strict optimizing to the goal-programme approach and to emphasizing the importance of non-quantifiable goals.[74]

Systems theory — or cybernetics, the study of information and control[75] — doesn't either seem to have a master key to the question of goal-orientedness. Control is usually thought to presuppose the existence of a goal. For Churchman, for instance, defining a system means defining its global objective, environment, resources, components and control.[76] He is cited approvingly by the Soviet scholars Blauberg, Sadovsky and Yudin, who regard the emphasis given to the role of the goal as the foremost service of systems theory. However, they continue, systems theory has not and cannot propose a general methodology for finding the goals of different systems.[77] In order for the goal to be a measure of performance, it must be concrete. It can only be found by a system-specific analysis. In Soviet literature, this analysis is for the socialist economy given in BELS.

Many leading scholars of SOFE have been influenced by systems theory, but in quite different ways. Kacenelinboigen's group laid stress on Churchman's idea of the hierarchy of systems. Petrakov abandoned this approach and built his analysis around the ideas of the self-guidance and self-adaptability of complex systems. Maiminas used the cybernetical ideas of information in proposing his concept of metaplanning. Clearly, there is no unique connection between systems theory and SOFE.[78]

In conclusion, as far as SOFE relies upon the political economy of socialism with regard to BELS, its nonconventionalist attitude to optimality in socialism cannot hold. The situation, then, is paradoxical. On one hand, this reliance upon the political economy on this concrete point has been emphasized continuously. On the other hand, general denouncements of existing political economy were frequent in the 1960's, even amounting to pointing out what has been here called the pseudo-scientific status of PES.[79] An obvious question comes to mind: how has the political economy of SOFE developed since that time. This is the topic of the next chapter.

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[74] Afanasyev, V. (1971): *The Scientific Management of Society*, 218—226; Afanas'ev, V. (1981): *Obščestvo: sistemnost', poznanie i upravlenie*, 261.

[75] Hanken, A. (1981): *Cybernetics and Society*, 1.

[76] Churchman, C. (1968): op.cit.

[77] Blauberg, I.—Sadovsky, V.—Yudin, E. (1977): *Systems Theory*, 264, 277.

[78] Compare this with Susiluoto, I. (1982): op.cit.

[79] See, in particular, the comments of Šatalin above, p. 116.

5. THE POLITICAL ECONOMY OF SOFE

5.1. *The Šatalin debate*

The chapters above have been a critical reconstruction of SOFE and of the relevant parts of Soviet political economy. Here, we set our focus on two recent debates on SOFE to get a clearer picture of the foundations of this approach. The first debate basically took place during 1974—1976 after S. S. Šatalin, then a vice-director of CEMI, published a series of three articles together with two younger colleagues defending his strongly normative interpretation of SOFE. The second debate, starting in 1976, was meant to be a reassessment of the optimality paradigm within SOFE. The relations between SOFE and political economy were strongly present in both debates. Finally, we assess the version of SOFE-turned-into-political-economy offered by Fedorenko in 1980.

In 1974 Stanislav Sergeevič Šatalin was the youngish vicedirector of CEMI, a specialist in input-output, a 1968 laureate of the State prize and an active spokesman of the general approach of SOFE, especially in 1968—1970. In 1974 he became a Corresponding Member of the Academy of Sciences, and two years later he left CEMI for the newly founded Systems Research Institute VNIISI. He has also become the head of Nemčinov's and Fedorenko's former *kafedra* of mathematical methods in economics in Moscow State University.

Originally, Šatalin's work, done till 1965 at the Economic Research Institute of Gosplan, was quite concrete. This was probably the origin of his highly critical attitude toward traditional political economy, which was raising features of a given phase of economic development to the status of economic laws. Šatalin had the "laws" of the growth of the two departments of the economy, of costs, of productivity, and so on in mind when attributing to political economy the implication that "... the plan of national economic development should only be an illustration of *a priori* laws of (national economic — P.S.) proportions, which have at their time been fixed forever... Thus a contradiction is created between the theoretical laws of the development of socialist economy and the real needs of national economic planning".[1] In Šatalin's field, therefore, political economy served to conserve old developmental trends.

[1] Šatalin, S. (1968): *Proporcional'nost' obščestvennogo proizvodstva*, 5—6.

Several of Šatalin's general writings on SOFE in the late 1960's have been noted above (p. 114—116). The articles focussed upon here[2] are a restatement of Šatalin's normative understanding of SOFE. They are partly a reaction to the earlier criticisms by Kac, Kronrod and Val'tukh and, again, elucidated further answers from Kronrod.[3] This debate has been earlier noted by Alec Nove.[4] The basic interest here is in the relation of Šatalin and others (below GPŠ) to the internal development of SOFE.

In an article written in 1970, Šatalin strongly emphasized the normativeness of SOFE: it is theory of optimally functioning socialist economy and, as such, must be primarily written in terms of "should be" and not "is".[5] The same emphasis is evident in GPŠ-I. As such, the article asserts, there cannot be any disagreement on the fact of the objectiveness of economic laws. The problem where disagreements begin is in interpreting "objectivity". With a none-too-well veiled hint to the Stalinist tradition of political economy without statistics or other empirical analysis, GPŠ maintain that several economists have "subjective preferences" toward an academic political economy in which proposing newer and newer laws and categories is a goal in itself. But in modern conditions, science — economics included — is an immediate productive force.[6] For this to come true, the laws of political economy must become the tools of planning and other actions.

So far, GPŠ are not very controversial, but in what follows they challenge not only the usefulness of traditional political economy (much in the same way as had often been done earlier — see above, p. 114—120, but the prevailing interpretation of Marxism as well. Citing Lenin, GPŠ stress that Marx's theory is only

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2 Grebennikov, V.—Pčelincev, O.—Šatalin, S. (1974): Princip optimuma i političeskaja ekonomija socializma. *EMM* X:6, 1079—1089; Grebennikov, V.—Pčelincev, O.—Šatalin, S. (1975a): Cennostnye otnošenija v sisteme optimal'nogo funkcionirovanija socialističeskoj ekonomiki. *EMM* XI:1, 36—49; Grebennikov, V.—Pčelincev, O.—Šatalin, S. (1975b): Dinamičeskij narodnokhozjajstvennyj optimum i planovoe cenoobrazovanie. *EMM* XI:2, 239—251. The first two articles will be referred to as GPŠ-I and GPŠ-II, while the third one, dealing with prices, will not be discussed here. Also see Šatalin, S.—Grebennikov, V.—Pčelincev, O. (1978): Obščestvennaja poleznost' v sisteme ekonomičeskikh kategorii socializma. Šatalin, S. (1982): *Funkcionirovanie ekonomiki razvitogo socializma* contains Šatalin's answers to various critics. As if to stress the status of SOFE as the specific theory of CEMI, Šatalin — and also Danilov-Danil'jan — never uses the term SOFE when writing about the theory of optimal functioning after he left CEMI.

3 Kronrod, Ja. (1975): Ob ekonomičeskom optimume v svete metodologičeskikh principov političeskoj ekonomii socializma. *PKh* 10, 87—97. Also see Vikent'ev, A. (1977): O nekotorykh traktovkakh ekonomičeskikh zakonov i processov. *VE* 12, 128—133.

4 Nove, A. (1977): *The Soviet Economic System*, 340—342.

5 Šatalin, S. (1970): Nekotorye problemy teorii optimal'nogo funkcionirovanija socialističeskoj ekonomiki. *EMM* VI:6, 835—848.

6 The idea of science as a direct productive force was put forward in the 1950's, but only became popular in the later theories of the scientific and technical revolution.

about capitalism. All the attempts to use it in analysing socialism are based, they conclude, on forgetting the basics of Marxist methodology. In practice, this is taken to mean that a cardinal mistake has been made in interpreting the objectivity of economic laws in socialism. GPŠ are not denying the objectivity, but insist on a basic difference between capitalism and socialism. In capitalism economic laws are external to man. This is not true in socialism, where planning is consciously directed, goal-oriented changing of reality. As GPŠ put it somewhat clumsily:

> The idea of the planned character of development itself describes in socialism the objective and by no means subjective character of economic development; every attempt to separate it as some kind of an upper veil, to unveil under the planned character of development a kind of self-contained substance of social relations is a mere "intellectual subsumption" of socialist economy under a cosy scheme of thinking ... which (near to that of the natural sciences) actually only fits the needs of the political economy of capitalism. (GPŠ-I, 1081)

The analysis presented in the chapters above corroborates the conclusion here based on a superficial motive (the laziness of economists): the political economy of socialism is a bastard application of the Marxian idea of objective laws to a different society, where political decision making has taken much of the role that blind market forces have in capitalism. But what is then the approach the trio is proposing?

SOFE, they assert, follows the only correct Marxist road in analysing socialism as a consciously managed system. The essential difference between capitalism and socialism must be put in the focus of attention (compare the words of Oleinik; above p. 114). In this article GPŠ do not connect their approach to that of their predecessors from the Utopians to Jarošenko,[7] neither do they propose any reasons for preferring their approach. Perhaps its necessity is thought to have been proved negatively by the meagre successes of political economy.

The problems of lawlikeness, conscious action and causality are among the most difficult in philosophy. GPŠ do not quite succeed in explaining their understanding of the "objectivity" of economic laws. A necessary condition for objectivity in any society is, they postulate, being independent of the will or consciousness of men. In presocialist societies that is also the sufficient condition, while "in socialism the specificity of the objectivity of economic laws is in the necessity of their conscious substantiation in the process of planned productive activity" (GPŠ-I, 1082). But this can hardly be the answer GPŠ are looking for: if economic laws are necessarily substantiated in economic practice (which is also what the Stalinist ideology of

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[7] In his 1982 book Šatalin distinguished between three phases of the political economy of socialism. In the 1920's "certain Soviet economists" correctly tried to create political economy as an science of productive relations consciously created. Next came the "natural attempt" of objective production relations in political economy, and now is the time for a normative political economy. See Šatalin, S. (1982): op.cit., 33—34.

the 1940's claimed — see above, p. 73), why would a specific normative approach be needed? Either "necessity" in the previous quote means "necessarily happening" and the present day must be optimal, or then GPŠ are using the term in a normative sense — "what should happen" — in which case the present-day Soviet Union cannot be socialist. The latter is hardly what GPŠ mean, so they end up in a contradiction.

At about the same time, an answer to this query was given by Petrakov in his debate with Val'tukh (see above, p. 116). To recapitulate, an objectivist approach is conservative as it generalizes former economic policy lines into economic laws. A constructivist line understands that several policy lines are possible, while some of them are more, others are less correct from the point of view of optimality. GPŠ however do not adopt this line of argument.[8]

Indirectly, an answer to the question of the need for a normative approach is perhaps given when GPŠ assert that optimality is not brought about by itself. People's ideas on the optimal economy are an important determinant of their activities: "Cognizing the laws of the optimally functioning economy, the members of the socialist economy transform this knowledge into a system of concrete tasks (given for each period) for reforming the modes of economizing" (GPŠ-I, 1089). Here, a criticism of present reality that is optimality-paradigm inspired has a central role.

Clearly, for GPŠ the properties of the optimum are a logical precondition for reforming the economy. Kronrod is thus not wrong in his criticism when he claims that SOFE derives the (proper, or optimal) production relations of socialism from the properties of the optimum. He is wrong, however, in concluding that this makes the SOFE of GPŠ pure teleology. For Šatalin and others, the optimum is not once and forever given, but its definition is corrected within the socio-economic process.

But what exactly is the origin of the ideas of optimality for GPŠ? In 1970 Šatalin clearly stood for an axiomatic ideal of science and thought that SOFE should be axiomatic.

> These points of departure can be regarded as *a priori* relative to the economic theory of socialism, the task of which is to prove on their basis 'theorems' describing the mechanism of optimally functioning socialist economy. Discussing the development of economic science becomes, in our opinion, fruitful if not directed against the axiomatic-normative method of developing economics with the optimality approach, if not directed towards formulating ever new "laws" of economic development — which have no method of proof — but directed

[8] Later Šatalin seems to have a contradictory position. He writes about an objectivily necessary cognition of economics laws so that the economy has a consistent tendency to optimality, but on the other hand, using the "law" of primary growth of the production of means of production, explains how false ideas may be transformed into reality. Ibid., 41—43, 82.

> towards studying the completeness, independence and non-contradictoriness of the systems of the categories of departure.[9]

This citation is worthy of note only as one of the most explicite declarations of the early methodology of SOFE, but also for the fundamental and well-taken criticism of political economy it contains. As pointed out above, the lack of a method for deciding upon disagreements is one of the features of political economy that makes it into a pseudoscience.

In 1970 Šatalin took the existence of the global objective function as an example of these axioms. As so often in SOFE, it is "proved" by equating planning and the necessity of an objective function. The same reasoning is used in Šatalin's book of 1982. This proof is only defensible if socialism is equated to rational planning and rational planning to optimizing. As seen above, such a mechanistic interpretation of planning was often criticized in the Soviet literature of the 1970's. The first part of the chain of arguments is not beyond counterarguments either.

Šatalin of 1970 stands firmly for the axiomatic method and Šatalin of 1982 is at least very near to it. But GPŠ of 1974 denied trying to reconstruct political economy in the spirit of a strict deductive construction. That would be an unsuitable ideal for a science with an everchanging object. Furthermore, GPŠ note in 1974 that the centre of research is going over to socio-economic problems, which effectively means a redefinition of the object of economics. Even then, proceeding through postulates and theorems is a fundamental way of making economic science stricter. But what is new in the article of GPŠ is their attempt to relate the deductive method to Marx. In theoretical presentation — the mode of presentation as Marx called it — postulates may seem *a priori* (as Marx notes of his categories in the beginning of *Capital*, Vol. I), but actually they are a product of previous research (the mode of research in Marx). In the spirit of the Marxian dialectics of the abstract and the concrete, GPŠ tell that postulates are abstractions of empirical reality and the theorems derived come back to a concrete level.

Two things should be noted here. First, the characterization of the postulates given would seem to require their empirical correspondence to reality. They should be based on empirical research, not on a postulation of the properties of socialism, as in Stalinist political economy (see above, p. 64). Furthermore, the approach of empirically abstracted postulates seems to shift GPŠ away from the approach of Petrakov in his Val'tukh-debate. But remembering Šatalin's criticism of political economy (above, p. 176), this is an obvious contradiction: GPŠ must be doing what Šatalin criticized political economists for doing. Second, GPŠ do not specify that the derivation of theorems should be done by dialectical logic — as was done by Fedorenko later (see below, p. 192).

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[9] Šatalin, S. (1970): op.cit., 837.

The article of GPŠ is an important step of SOFE towards political economy, even if it is contradictory, and this is crowned by taking the social ownership of the means of production and the basic economic law of socialism — hardly empirically abstracted postulates, as seen above — as the axioms of SOFE. The character of socialism as a consciously optimized system is now taken to be derived from these two axioms (GPŠ-I, 1084).

Jakov Kronrod naturally applauds these changes. Still, he likens the normativeness of GPŠ to voluntarism. For Kronrod, optimality cannot be something instituted after cognizing the laws of optimality. It must be brought about by objective laws, with conscious action limited to finding the laws and following them. Here the difference between GPŠ and Kronrod finally comes very near to that between Petrakov and Val'tukh. It is the difference between reformist and conservative world views. If GPŠ are voluntarists to Kronrod, then Kronrod is a fatalist to GPŠ.[10] The problems of GPŠ, pointed out above, are those of a philosophical compromise. One really cannot unite reformism with a conception basically making economic policies lawlike.

The main point of GPŠ-I is to defend a practical interpretation of socialist economic laws. In GPŠ-II this interpretation is used to give a new assessment of the valuation (cennost') relations in different economies. A method of valuation that compares costs and benefits is needed in any society, but the method appropriate for a society is not arbitrary. It depends, GPŠ argue, on the objective of production in the society. As the capitalist objective is to accumulate exploited labour as capital, the valuation method for capitalism is the labour theory of value. As given by the basic law, the objective of socialism is the development of man and social utility must, therefore, be the basis of valuation. The further socialism develops, the more value (in the sense of the labour theory of value) dies away and social utility takes its place (GPŠ-II, 36—39). It is worth pointing out that here GPŠ practically adopt Preobraženskij's idea of the two regulators in the transitional economy, just substituting social utility for the more abstract planning principle of Preobraženskij. Moshe Lewin has emphasized how the reformist economists of the 1960's resurrected the Bukharinist idea of "plan and markets".[11] The example of GPŠ is a useful reminder of the fact that also Preobraženskij's notion that "the more planning, the less markets" had its proponents among the new mathematical economists, not only among conservative political economists. A third approach also existed. Kacenelinboigen's group had, after all, tried to show the invariancy of prices, profits and so on, unconcerned about the market-like and the nonmarket-like institutions in society.

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10 Šatalin, S. (1982): op.cit., 81.

11 Lewin, M. (1974): *Political Undercurrents in Soviet Economic Debates.* As far as Lewin uses the work of Kacenelinboigen's group as the evidence of a plan and markets-approach, his interpretation is evidently not correct.

In principle, thus, social utility is immanent to socialism. But so far no method for measuring it exists, though, remembering "the limitless development of science" (GPŠ-II, 40), the situation may be different already tomorrow. Therefore, the principles of SOFE must, for the time being, be taken into account by adopting the economic interpretation of socially necessary labour time. Furthermore, methods of vectoral optimization and social indicators can be used as a substitute for the missing utility measure.[12] Relying on them is not taken to mean abandoning the basic idea of a measureable utility.

Utility measurement will be affected by diverging trends. On one hand, the objectives of society are getting more complex and difficult to measure. On the other hand, the diminishing of social differences and growing collectivity make it easier to compare utilities over persons and social groups.[13]

These practical considerations are evidence of the difficulties met with in building objective functions. Kronrod naturally sees them as evidence of a fuzziness in the fundamentals of SOFE. In his eagerness to refute SOFE, he overreaches in a way showing the political economists' dilemma in face of the concept of utility. On one hand, he sees a line of thought from Wicksteed, the "theologist and first critic of Marx", to the theory of marginal utility and further to SOFE. On the other hand, to show that there is nothing new in SOFE, Kronrod notes that the concept of social utility exists already in — *Capital*, Vol. I![14]

In Soviet parlance, the law of value is often equated to markets. Does it follow from the denial of this law that GPŠ are anti-market centralists? The economic mechanism is discussed in GPŠ-II. For GPŠ, the criterion for centralizing and decentralizing is efficiency. They explicitly rule out the use of any democracy-considerations as *a priori* to economics. Total direct centralization would be both impossible and inefficient. On the other hand, material stimulation is necessary for efficiency. Giving lower levels relative independence may either work for planning or against it, as the basis of commodity-money relations:

> The more the functioning of socialist economy has a planned, that is consciously optimized, character, the more the basic economic law of socialism regulates the speed and proportions of socialist economic development, and also the more the setting of prices and other valuation indicators loses its connection to commodity-money relations and is subsumed to the specific functioning laws of the planned form of economy. (GPŠ-II, 44)

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12 The early, not the late 1970's is thus the period when the social indicators movement came to the Soviet Union. Compare Ellman, M. (1982): Did Soviet Economic Growth End in 1978? For a CEMI proposal for social indicators see Sokolov, K.—Petrov, V.—Mamedov, A. (1979): Problemy razrabotki sistemy vzaimosvjazannykh pokazatelej social'no-ekonomičeskogo planirovanija.

13 For Pčelincev's opinions about optimality in capitalism and in socialism see above, p. 134.

14 Kronrod, Ja. (1975): op.cit., 93—94.

The conclusion is obvious: for GPŠ markets and planning are contradictory. The more there is of one, the less there can be of the other. Here GPŠ are explicitly renouncing the standard reformist idea of markets as a way of implementing planning in socialism — an idea that was defended by Petrakov at the same time (see above, p. 123). At this time this fundamental difference of opinions within SOFE was only implicit. But in his book of 1982, Šatalin explicitly rejects the idea — the reference is to Pugačev's book of 1968 — of different ways to the optimal regime, either through implementing the optimal plan or through a proper economic mechanism. For Šatalin the possibility of relying on free markets is not a constructive hypothesis but "simply mystical", as the inability of markets to generate optimal prices has been proved. Thus the optimum cannot be reached by "correctly organizing the interaction of all the parts of the national economy". It can only be reached through an optimal plan.[15] Even before this, in 1981, Viktor Volkonskij — perhaps the main Soviet proponent of the alternative Šatalin dismissed — had criticized GPŠ as centralistic.[16]

GPŠ are not looking for a nonmarket economy. Prices in the optimal regime have the functions of 1 units of calculations, 2 parameters for planning on the lower levels, 3 decision-making criteria for the lower levels when deviating from the plan because of random variations and 4 units of disaggregation (GPŠ-II, 45). But the more planning develops, the less need there is for the two last functions and for markets. GPŠ think: "Both planning and commodity relations exist in the socialist economy, but they are in no way elements of one another, in the same way as this cannot be said of capitalism and socialism existing on our planet" (GPŠ-II, 47). There may be coexistence, but the fundamental exclusiveness remains.

Kronrod, himself sometimes called a market socialist (above, p. 146), concludes from this that GPŠ are opposing the economic policies of CPSU. This obvious problem was already faced in the article. It is said to be possible "in principle" that commodity-money relations are good stimuli for socialist production. Then it is correct to enlarge their use, but as a means for finally reaching the marketless society. The final goal obviously is to make prices just units of calculation.

The case of GPŠ, as compared to the writings of Petrakov and Volkonskij, is instrumental is showing how different conclusions can be drawn from the theorems of economic theory. Šatalin is certainly correct in insisting that optimality can not be reached by price guidance in most environments. But he is wrong in implying that this would necessarily show the appropriateness of some other system

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15 Šatalin, S. (1982): op.cit., 262—264. It will be noted that Šatalin's conclusion is logically faulty, but his message should be clear enough.

16 Volkonskij, V. (1981): *Problemy soveršenstvovanija khozjajstvennogo mekhanizma*, 29—30 etc.

of guidance. So far, economics gives more reasons for the nonoptimality of the world than firm guidelines for implementing an optimal world.[17]

5.2. *The objective function revisited*

In 1976 EMM started a discussion on "socio-economic models of the national economic optimum", presumably to clarify the problems that had been recently debated by Petrakov, Šatalin et al., Val'tukh, Maiminas, Bojarskij, Kronrod and others. As pointed out above, a programme of going over from static to dynamic, partial to global, deterministic to stochastic and techno-economic to socio-economic models had been sketched in the beginning of the decade. At the same time, important political economists were taking problems of optimality into the centre of their discipline, and discussions leading to the 1979 decisions on the economic mechanism were starting. It was obviously time to reassess the foundations and practical implications of SOFE, especially as the question of the global objective function had proved to raise more quarrels than any other theoretical economic problem, as Fedorenko was to note.[18]

The discussion in EMM was started by the articles by Nikolai Petrakov and Konstantin Val'tukh, who had recently debated on normativeness vs objectivity in economics (see above, p. 116).[19] Petrakov essentially restated his earlier criticisms of the "engineering approach" to an economy with endogenous decision making and contradictory interests, just adding an implicit comment to Šatalin's group. Without mentioning names, he emphasized that the distinction of "a plan and a mechanism for its implementation" (compare above, p. 183) is just as "perspectiveless and unscientific" as is the counterposing of "plan or markets". For Petrakov, and contrary to Šatalin, plan and the mechanism implementing and also correcting it are a unity.

Konstantin Val'tukh launched a full-scale attack against SOFE. First of all, he did not admit the existence of such a system: "to us it would be more correct to talk of different developments, the authors of which have set creating such a system as a *goal*".[20] Secondly, the work on SOFE so far had limited itself to an economy with given resources and techniques. The socio-economic dynamics of endogenous

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17 In surveying GPŠ Alec Nove notes that their position differs from that of many reformers and is "at the first sight paradoxical" (Nove, A. (1977): op.cit., 314). Remembering the position of GPŠ on the long-term diminishing role of commodity-money relations any paradoxes disappear. Not only "the less developed is systematic, optimal planning ... the more importance these local-horizontal and local-vertical relations have in the economy" (GPŠ-II, 46) but also the reverse clearly holds for them: the more good planning, the less there is need for markets.

18 See *Problemy narodnokhozjajstvennogo kriterija optimal'nosti* (1982), 7.

19 Petrakov, N. (1976): Mekhanizm funkcionirovanija socialističeskoj ekonomiki i problema narodnokhozjajstvennogo kriterija optimal'nosti. *EMM* XII:5, 941—953; Val'tukh, K. (1976): O razrabotke teorii ekonomičeskogo optimuma. *EMM* XII:5, 954—967.

20 Val'tukh, K. (1976): op.cit., 957.

technical progress had been neglected. They had to be studied with nonequilibrium nonlinear models, though Val'tukh did admit that also in Novosibirsk only the first steps had been taken in this direction. Thirdly, Val'tukh did not accept the normative approach that is typical of SOFE.

For Val'tukh, all science must be based on (presumably empirical)[21] facts: "If some theory is not able to explain reality (or simply regards it as a mistake), then presumably it is also not able to help in changing it, because the change itself is only possible as a realization of the laws of reality."[22] The reference to Petrakov (see above, p. 116) is evident. Val'tukh deduces that in having rejected the correspondence theory of truth, Petrakov et al. had rejected a basic principle of science and basically science itself:

> An *a priori* theory, which departs from the idea that if facts do not correspond to the implications of the theory, "the worse for the facts" (i.e. what must be changed in all these cases are facts, not the theory), cannot be regarded as a scientific theory and may not pretend to be that ... the one who does not put forward a prior method for testing the correctness of his conceptions, who is calling for an acceptance on belief, himself sets those conceptions outside science.[23]

Val'tukh's objections are based on an empiric philosophy and need not be accepted to see that he was raising questions of the utmost importance for SOFE. Disappointingly, this challenge was only met implicitly by the increased emphasis on the political economic orthodoxy of SOFE. This may be an effective evasion in the Soviet context, where a scholar seldom asks for the empirical backing of the laws of political economy, but the previous chapter should have made the hardly convincing character of this evasion evident. Largely bypassing all the questions of normativeness vs. positiveness, the discussion focussed on the global objective function.[24] Only a few articles were published on the wider problems

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21 This is not explicit in Val'tukh's 1976 article, but see Valt'tukh, K. (1979): Obosnotvanie planov i procedury razvitija ekonomičeskoj teorii. *EKO* 3, 33—48.

22 Val'tukh, K. (1976): op.cit., 964.

23 Ibid., 964.

24 Rozenfeld, B. (1977): O modelirovanii formirovanija celej v social'no-ekonomičeskoj sisteme. *EMM* XIII:1, 152—164; Tambovcev, V. (1977): K evoljucii predstavlenii o narodnokhozjajstvennom kriterii optimal'nosti. *EMM* XIII:4, 751—760; Rudneva, E. (1978): Nekotorye metodologičeskie voprosy opredelenija narodnokhozjajstvennogo kriterija optimal'nosti. *EMM* XIV:3, 571—583; Gavrilec, Ju. (1979): Izmerenie poleznosti i koncepcija optimal'nosti. *EMM* XV:3, 582—596; Faerman, E. (1980): Kriterii optimal'nosti i social'nye predpočtenija. *EMM* XVI:1, 165—175; Fedorenko, N. (1979b): Problema narodnokhozjajstvennogo kriterija optimal'nosti: uroven' razrabotki i napravlenija dal'nejšikh issledovanii. *EMM* XV:6, 1047—1055; Petrakov, N. (1979): Nekotorye problemy narodnokhozjajstvennogo kriterija optimal'nosti i praktičeskie zadači soveršenstvovanija sistemy planovykh pokazatelej. *EMM* XV:6, 1056—1066; Bojarskij, A. (1979): O soizmerenii poleznostej v narodnokhozjajstvennom optimume. *EMM* XV:6, 1067—1074; Diskussija po probleme narodnokhozjajstvennogo kriterija optimal'nosti (1979). *EMM* XV:6, 1075—1093. Much of this material is also in *Problemy* ... (1982).

of socio-economic optimality.[25]

Discussing the global function, numerous writers point out its high importance, but several also point out the small number of results received. Thus Natal'ja Rimaševskaja, a department head of CEMI, maintains that almost no constructive results have been received during the last twenty years. Not a single monograph exists on the problem, she points out.[26] This assessment is also emphasized by M. G. Zavel'skij: in the last fifteen years the problem has not been seriously discussed. Furthermore, Zavelskij sees in the coexistence of different opinions on the objective function a coexistence of modern and antiquated opinions.[27]

Indeed, the existence of several widely differing approaches to the goal function is a conspicious feature of recent discussions. In this field, the growth of knowledge seems to mean the birth of new approaches, not an ability to abandon any previous ones. Following the articles of Tambovcev and Rudneva, one can divide the existing proposals into two basic groups, exogenous and endogenous. Among the exogenous objectives are those of the classical models of Kantorovič and Novožilov, as well as those of Kacenelinboigen's group and of Faerman in 1971. In the former proposals, either the structure alone or the structure along with the level of final production were to be decided out of the planning models — by planners and political decisions makers — while in the latter two proposals, end-use norms were to have central importance. Goals were also exogenous in early integrated planning (above, p. 132). Among the modern proponents of exogeneous goals are political economists like Čerkovec,[28] who sees the exogenousity of goals as necessarily following from the political economic approach of having goals based on objective laws. Also the conservative statistician Bojarskij[29] stands for exogenous goals. Furthermore, Faerman has been repeating his earlier proposal,[30] and actually his approach is to be used in the central national economic bloc of the SMOTR system of models.[31] Also the various — and nowadays numerous — proposals of using social indicators based on expert evaluation should be seen as exogenous. As to social indicators, clear differences of emphasis seem to exist. While some economists (V. N. Bogačev, N. Ja. Petrakov, and with reservations V. L. Tambovcev) believe

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25 Maiminas, E. (1979): Teoretičeskie problemy modelirovanija social'no-ekonomičeskoj sistemy. *EMM* XV:4, 653—667; Ovsienko, Ju.—Sukhotin, Ju. (1979): K voprosy o meste teorii optimal'nogo funkcionirovanija ekonomiki v sisteme ekonomičeskikh nauk socializma. *EMM* XV:4, 783—795; Zavel'skij, M. (1978): O problemakh teorii narodnokhozjajstvennogo optimuma. *EMM* XIV:4, 763—795; Danilov-Danil'jan, V. (1980): Metodologičeskie aspekty teorii social'no-ekonomičeskogo optimuma. *EMM* XVI:1, 146—164.

26 *Problemy* ... (1982), op.cit., 41.

27 Ibid., 64—65.

28 Ibid., 140.

29 Bojarskij, A. (1979); op.cit.; *Problemy* ... (1982); op.cit., 31—41.

30 *Problemy* ... (1982), op.cit., 52—64; Faerman, E. (1980): op.cit.

31 Matlin, I. (1978): Svodnaja narodnokhozjajstvennaja model' v sisteme modelej optimal'nogo perspektivnogo planirovanija. *EMM* XIV:6, 1102—1112.

in some kind of objective foundation for them, others (M. G. Zavelskij and Ju. N. Solnyškov) reject this possibility. For the latter, therefore, building social indicators is more of an art than for the former.

The first variant of endogenous objectives is using utility functions based on consumption data. This has been previously proposed by, among others, Volkonskij and Val'tukh, and was now put forward by Juri Gavrilec, S. R. Kirillov, Rimaševskaja and others. One development in this work would be to widen its scope to include not only private consumption goods, but also social goods and people's "life-activities", as envisaged by K. A. Bagrinovskij.[32] Another variant of endogenous objectives is to apply the principle of revealed preferences to the decision makers of different levels. This approach was discussed by Tambovcev, who did not propose drawing up the preference maps of decision makers, but emphasized the necessity of increasing the information available to them, as decisions are dependent upon a) how well the values and interests "of the group they represent" are reflected in the decision makers' consciousness, b) the knowledge of the existing alternatives and c) the connections between the goals and these alternatives. This is why Tambovcev proposes developing "institutions of Soviet democracy, the study of public opinion, sociological studies, studies of economic interests and of 'value' preconditions of 'economic' behaviour"[33] to further the channelling of social preferences into political decisions. The same point is also emphasized by other discussants, who also point out, for instance, the problems of market disequilibria causing forced substitution — and thus false preference signalling — and of competence in decision making; for example, V. L. Makarov of Novosibirsk ponders who is competent to decide upon the future of the Siberian rivers.[34] He also complements the "from down to up" approach of Tambovcev by stressing the need for systematic ideological working of the masses.

This leads to the question of whose preferences — those of the centre or those of individuals — should be the starting point. This question is either bypassed or decided in the favour of the first possibility in the exogenous approach. The endogenous approach is weighted in favour of the latter possibility. In the early 1970's Petrakov and Danilov-Danil'jan regarded social goal formation as a process of articulating the interests of different social groups. The debate between the compositional (from local interests to the global objective) and the decompositional (local objectives must be subordinated to global) approaches is still very much alive. For Petrakov, objectives still are a matter of the economic mechanism: the problem of uniting global and local objectives is, in fact, a problem of dividing rights and obligations in the economy.[35] Zavelskij and Gavrilec were among the

32 Diskussija ... (1979), op.cit., 1089—1090.

33 *Problemy* ... (1982), op.cit., 94.

34 Ibid., 89.

35 In addition, and in possible contradiction, to stressing the endegenyity of goals Petrakov also uses the system — supersystem notion.

other foremost proponents of the compositional approach. On the other hand, P. G. Bunič — the expert on industrial management — and Faerman conclude that only the decompositional approach corresponds to the character of the socialist society.

Though different opinions on compositional vs. decompositional goal formation thus still exist, the general emphasis has lately been increasingly upon the latter, more centralized variant. This is seen in comparing the different variants of the model system of Baranov and others with its latest embodiment, project SMOTR. The stress upon the priority of "the interests of all the people, of the state" was especially evident in the *EMM* editorial commenting upon the June 1983 Central Committee plenum, which had criticized the activities of CEMI.[36]

Some of these differences are no doubt little more than differences of emphasis based on divergent research interests. Thus an exogenous approach has an obvious advantage in long-range planning. While the political economist Čerkovec stresses the necessity of exogenous goals, he also delimits this to the "principal, abstract-theoretical" level. On the concrete, short-term level few would probably disagree with Kirillov, who points to practical experience to show that choices of producing consumer goods cannot take place behind the backs of consumers, without hearing their voice. Anyway, when the Scientific Council of the Academy of Sciences for Optimal Planning and Management of the National Economy drew the conclusions of the discussion, it stated that research had shown that the optimality criterion cannot be *a priori* to the plan, but "must be formed and corrected in the process of drawing and implementing the plan", that is endogenously.[37]

If different opinions exists as to how to form the global objective, the scale of opinions is as wide as to the theoretical importance of the objective function. To Fedorenko and to Petrakov (compare above, p. 124), denying the existence of the global function still means denying the planned character of socialism. At the other extreme, A. I. Sockov of CEMI proposed concentrating on local improvements without continuing the vain search for a global objective.[38] A middle position was taken by L. V. Kantorovič: *the* global objective function is probably an unsolvable problem as "generally meant — global, universal, strict, absolute". In practice, the existence of different approaches is both necessary and useful.

The widening of the discussion on the objective function to problems of Soviet democracy is a natural development of the road sketched by Petrakov and others in the early 1970's. Another recent development is a more realistic reassessment of the possibilities of mathematical economics. Thus, Fedorenko regards the System

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36 Zadači obščestvennykh nauk v svete rešenij ijun'skogo Plenuma CK KPSS (1983). *EMM* XIX:6, 965—975.

37 *Problemy* ... (1982), op.cit., 163—164.

38 This opinion is in Diskussija ... (1979), op.cit., 1090 but not in *Problemy* ... (1982), op.cit.

of Integrated Planning (SKP) as the method for explicating the objective in practice during the process of planning. V. L. Tambovcev, the leading CEMI authority in the field, points out, on the other hand, that all existing versions of goal-oriented planning — including the goal of trees used in SKP — advance from a preselected plan-goal. The process of formulating it is not operationalized. In this respect, as Tambovcev points out, existing approaches leave out one central task originally set in the beginning of 1960's — to formulate a goal function as a criterion for selecting the plan. The goal-orientedness of SKP is in studying the relations between exogenous "final" goals and more concrete goal normatives.

Tambovcev's remark points out an important fact. A crucial shift has taken place within Soviet economics. The economic and political domains have remained fused[39] in Soviet society since the times of the Stalinist revolution. An important goal of Post-Stalinist economics was to conquer a niche for the economy that was relatively autonomous from politics. This goals was often expressed as that of creating self-regulating feedback-mechanisms, but it also meant an endeavour to set up scientific criteria for decision-making, partly based upon data on the preferences of economic agents, partly upon normative data. What Tambovcev is now pointing out is that economists in the late 1970's were willing ot leave goal setting to the political sphere again, out of the focus of economics. The realm of the economy is thus seen to be narrower than was hoped for in the 1960's.

In this light, it is easy to agree with Danilov-Danil'jan's 1980 survey of the basic problems of SOFE.[40] He notes that a very sceptical attitude to the theory of the optimum is widely shared. This is, Danilov-Danil'jan concludes, due to the small number of practical applications, basically reflecting a neglect of theoretical fundamentals. At the same time, the theory of the optimally functioning economy is talked about as if it existed. Even its position among the economic sciences is pondered about! (see above, p. 140). Much useless talk is given to the "importance" and "immense practical value" of measuring social utility, while this concept has been defined only loosely and has no operationalizations[41] — apart from references to market data and normatives, the problems of which are by now well-known in Soviet literature.

While the assessment of the existing situation given by Danilov-Danil'jan is realistic, he has no easy solutions to offer. In socio-economic problems, he stresses,

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39 For the concept of fusion see Bunce, V. (1983): The Political Economy of the Brezhnev Era: The Rise and Fall of Corporatism. *The British Journal of Political Science* XIII:2, 129—158. Also see Nove, A. (1980): Socialism, Centralized Planning and the One-Party State.

40 Danilov-Danil'jan, V. (1980): op.cit.

41 These comments may have been directed against Šatalin. At least he reacted, though without referring to Danilov-Danil'jan by name. In an article he denied that valid arguments had been presented against the idea of maximizing utility, but as to its practical application he only could say that it is a "complex social process". Šatalin, S. (1981a): Ob očenke konečnykh rezul'tatov funkcionirovanija socialističeskoj ekonomiki. *IAN* 5, 5—17.

both goals and constraints are poorly defined. Therefore — and contrary to what Juri Gavrilec has recently written[42] — the problems encountered in formalization are not just technical. In another article Danilov-Danil'jan looks for developments within mathematics to deal with the problems raised by disciplines like economics, sociology and linguistics. The existing formal apparatus — largely inspired by the natural sciences — is not always appropriate for these disciplines.[43]

In a well-known article in 1971, the Nobel economist Wassily Leontief took a critical attitude toward developing ever more sophisticated economic models. Commenting on this, Fedorenko saw it as just proof of the inability of capitalism to use scientific achievements fully.[44] Now in his article published in 1980, Danilov-Danil'jan, who had been some years earlier criticized by planners for proposing models that were too complex (above, p. 145), notes that traditional planning methods, because of their flexibility, are in some situations much better than mathematical models. One circle has thus closed among the theoreticians of an optimally functioning socialist economy. Another circle may well be seen in Danilov-Danil'jan's comments on the requirements set by economics on the mathematical methods to be used. Some twenty years earlier such comments, in practice, meant opposing the theory of optimal planning.

5.3. *Present state(s) of the political economy of SOFE*

The work done on the political economy of SOFE in CEMI was bearing fruit when academician Fedorenko first in an article in *Voprosy filosofii* and then in a monograph presented "an attempt at a short summary of the theoretical arsenal accumulated on the present stage of working out SOFE".[45] The article just mentioned raised some responses in the same journal, while the most notable review of the monograph was written by Fedorenko's earlier co-author, S. S. Šatalin.[46] Finally, in 1982 Ša-

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42 Gavrilec, Ju. (1979): op.cit., 588. The recent book by Gavrilec on these questions (Gavrilec, Ju. N. (1983b): *Celevye funkcii social'no-ekonomičeskogo planirovanija*) become available too late to be incorporated here.

43 Boltjanskij, V.—Danilov-Danil'jan, V. (1979): Matematika i naučno-tekhničeskij progress. *VF* 7, 114—124.

44 Fedorenko, N. (1973b): O vzaimodejstvii estestvennykh i obščestvennykh nauk. *VF* 10, 31—38.

45 Fedorenko, N. (1978c): K voprosy o "kletočke" socialističeskogo proizvodstva. *VF* 4, 33—48; Fedorenko, N. (1980): *Voprosy optimal'nogo funkcionirovanija ekonomiki.* This book was printed in just 2200 copies, while Fedorenko's 1968 book was printed in 5000, 1977 book in 4500 and the 1979 book in 3900 copies. Šatalin's 1982 book was printed in 4670 copies.

46 Otkliki na stat'ju N. P. Fedorenko o "kletočke" socialističeskogo proizvodstva (1979). *VF* 12, 134—143; Šatalin, S. (1981b): Narodnokhozjajstvennyj optimum v ekonomičeskoj teorii socializma. *EKO* 12, 161—171.

talin published a monograph largely though not entirely devoted to defending his interpretation of SOFE.[47] Together Fedorenko's and Šatalin's books give a good idea of the diversity of views within present-day SOFE.

A large part of Fedorenko's book is devoted to general problems of using mathematical methods in the economy. Of interest here is only that part which presents Fedorenko's somewhat contradictory current understanding of the political economy of SOFE. The basic contradiction is in defending the thesis of SOFE as being based "on the solid foundation of the Marxist-Leninist political economy of socialism" while not all traces of the axiomatic approach have disappeared. Šatalin, noting Fedorenko's ambivalence, does not hesitate to recommend the latter road.

Fedorenko's basic interest in this book seems to be arguing for the Marxist-Leninist orthodoxy of SOFE. Its approach, so we are told, is that of the concrete systems approach. The systems approach shows the correctness of the dialectical laws: all analysis of hierarchical systems is based on the dialectical law of quantitative and qualitative changes, while the law of unity and struggle of contradictions is seen in feedback mechanisms, and so on. Fedorenko's striving for high orthodoxy is also seen in his conduct of debate: citations of Marxist classics are taken as unassailable proofs and Jakov Kronrod — once again the main target — is attacked by using these weapons.

The basic debate with Kronrod is, as can be expected, on the normativeness of SOFE. Fedorenko's argumentation has a familiar ring: it is based on the same idea as the one which the Stalinists used to fight the Right Deviationists. Socialism contrary to presocialist modes of production, does not come about *samotekom*, spontaneously. Socialist revolution just gives political preconditions for consciously building the new society, new relations of production to correspond with the modern productive forces. To the Stalinists, this was an argument for a revolutionary rupture; for Fedorenko, it is an argument for reformism. The optimum regime does not come about by itself — as Kronrod seems to be arguing — but by taking a scientific view (that of SOFE) of what socialist productive relations should be and then construing such a society in practice. This, Fedorenko maintains, is the present-day relevance of Marx's well-known thesis on Feuerbach. Actually — and here Fedorenko glides over a lot of basic problems — seeing a contradiction between "should" and "is" has always been wrong. For instance, the economic theory of socialism was created long before the first socialist revolution as a theory of what should be, and, in the same vein, the foremost task of economists in socialism is to study what are the productive relations adequate for socialism. To Fedorenko, this approach, which is as we have seen totally alien to classical Marxism, is just another side of the basically planned character of the development of the socialist

[47] Šatalin, S. (1982): op.cit. Though Šatalin no longer works in CEMI, he still regards himself as one of the developers of SOFE. See Šatalin, S. (1981b): op.cit.

society. Planning is not only planning production, but also planning the relations of production: this is impossible without a view of what these relations should be. This is Fedorenko's basic argument.

The political economic innovation of these writings is the attempt to incorporate the basic ideas of SOFE into a Marxist framework of categorical derivation modelled after Marx's *Capital*, Vol. I. As was seen above, this methodological guideline is generally even if not unanimously accepted as the only proper Marxist one in modern Soviet political economy. Fedorenko curtly rejects the objections raised by Ostrovitjanov et al. against this kind of thinking in the 1960's basically "as not corresponding to the requirements of dialectical logic".[48] His basic idea is to differentiate between the "cell" of socialist production relations and the "category of departure" (or the "productive relation of departure") of the mode of production. This procedure, by no means original to Fedorenko, is seen as corresponding to that of Marx in *Capital*, where commodity — the unity of value and usevalue — is interpreted to be the economic cell and capital relation is the relation of departure of capitalism. This is how Fedorenko characterises these concepts: "...showing the relation of departure means showing in the most abstract form the essence, specificity, main differentiating characteristic of the mode of production, proceeding from which it is possible to reveal the logical interdependence of all categories and relations of the socio-economic formation. The problem of finding the primary economic cell — it is, in essence, the problem of showing the simplest element of the system, in which, like in a "drop of water", all its multiplicity is codified, that is, not only the main differentiating feature of the system — the relation of production — but also the way of its realization in the process of the real functioning of the system".[49]

It should be noted, first of all, that Fedorenko's interpretation of the structure of *Capital* is open to question. To him, capital is the relation of departure of capitalism, while value is the relation of departure of simple commodity production — of the historical and logical origins of capitalism. There are at least two problems here. One is the possibility of defining a "simple commodity production" distinct from the surface of capitalism.[50] A strong opinion among students of Marx denies this possibility. Furthermore, a point bypassed by Fedorenko is perhaps even more

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48 The same objections are made by Fainberg and Kozlova in Otkliki... (1979), opcit.

49 Fedorenko, N. (1980): op.cit., 64. In fact, this is not the first attempt at defining the "economic cell of socialism" in SOFE literature. Much earlier, Kacenelinboigen published an article in which he argued that the utility maximizing worker should be seen as this cell. Though the article comments upon the views of various political economists, it is not based on this approach, but on a biologically interpreted systems thinking. See Kacenelinboigen, A.—Olevskaja, Je. (1972): O nekotorykh obščikh i specifičeskikh čertakh različnykh urovej upravlenija socialističeskoj ekonomikoj.

50 This happens to be one of the few problems in Marx-studies that have been debated in Western economic literature as the "historical transformation problem".

serious. If capital is the relation of departure, which is the basic production relation of capitalism? When talking about socialism, Fedorenko does make this distinction.

Fedorenko proposes maximizing social utility as the relation of departure of socialism. Here utility should be understood widely, covering not only the social produce but also the production relations and the system of values of the communist mode of production. As Šatalin points out, this wide interpretation taken by Fedorenko hardly helps SOFE very much. How is the system of values to be maximized? What is the relation, possibly hierarchy of these carriers of utility? And if the socialist production relations are included here, how can maximizing social utility be the production relation from which "all categories and relations of the socio-economic formation" are to be derived? These are serious internal objections within the approach Fedorenko is adopting. A. M. Eremin, the long time critic of SOFE, whose comments were among these published in *Voprosy filosofii*, points out one more problem. It is generally accepted that the production relation of departure should be primary not only logically but also historically (above, p. 156). This is also admitted by Fedorenko, but he does not discuss the historical dimension at all. It may perhaps be added that there does not seem to be much room between such a discussion and the apologies of Stalinist policies.

The economic cell of socialism is defined by Fedorenko as the "materialist dialectical triad" (actually this Hegelian *perpetuum mobile*, the triad, was hardly explicitly used by Marx at all): thesis (maximizing social utility) — antithesis (the conditions of development) — synthesis (the principle of planning). This triad should then be the starting point for deriving "the process of the real functioning of the system".

This proposal is certainly in many respects new to the political economy of socialism. But it has several drawbacks, too. Taking the model of Marx seriously, it may be noted that Marx and Fedorenko are reasoning in different directions. Marx derives his capital relation (the relation of departure as interpreted by Fedorenko) from commodity (the economic cell of capitalism). Fedorenko derives the triad, his cell, assuming the maximization of social utility. Thus obviously Fedorenko is somewhat putting his model on its head. Another point is that Fedorenko assumes that the real functioning of the system can be derived from a rationalistic planning problem. This is putting more weight upon the cell than most Marxists would put upon the cell of capitalism. Furthermore, who would claim that not only the logic of socialist relations of production but also their historical development can be derived from a rationalistic planning problem? To put it mildly, the existing historical evidence does not seem to support this hypothesis. Thirdly, and this was pointed out by Šatalin, is not Fedorenko's scheme the same goal-constraints-optimal plan thinking that was criticized by Petrakov, among others, in the early 1970's?

Indeed, a kind of back to the basics attitude can be seen in Fedorenko's book.

It is surprisingly written in the spirit of optimal planning, not in that of optimal functioning. Shadow prices and their interpretation are given much room, while their theoretical and practical limitations are almost bypassed in silence. True enough, in a short section the book does survey the development of SOFE from the theory of optimal planning to the theory of an optimally functioning socialist economy, but the optimal planning approach is and remains at the centre of Fedorenko's political economy. He actually writes: "the development of planning (*planomernosti*) as the all-embracing system of organizing the society, set to serve the highest goal of the communist formation, is the historical mission of socialism".[51] In this perspective, Fedorenko makes one more comparison with Marx's theory, in which capital is self-increasing value. For Fedorenko, the reproduction of socialist relations of production is the self-increasing of total social utility. It is no wonder that Šatalin in his review doubts whether taking the parallels of the theories of capitalism and socialism this far is reasonable.

This is the political economic approach of Fedorenko in a nutshell. But as was pointed out above, in addition to this "dialectical" approach he has another, the remains of the old axiomatic approach. Fedorenko writes about certain "fundamental principles" of SOFE: societal goal-orientedness, the existence of the global objective, scarcity, complexity and principles of material and moral interestedness. As Šatalin points out, the relation between these principles and the basic concepts of the dialectical approach are left totally open. And it is difficult to see how they could be derived from the economic cell, which would be the proper thing to do in light of the dialectical approach given much prominence in the book. Fedorenko is trying to connect two different approaches without showing how it might be done.[52]

Šatalin concludes that the dialectical approach showed its small value in the earlier political economy of socialism. The other approach is "more constructive", and his book of 1982 is largely devoted to showing this. Much of the book does this by criticizing political economic analyses of questions of reproduction, but here we concentrate on Šatalin's basic methodological points. They have not changed much. Šatalin still sticks to the basic Marxian idea of different societies needing different approaches of analysis. For Šatalin, Marx's theory of capitalism cannot be a model for the economic theory of socialism. This is Šatalin's negative message. The basis of his positive alternative is captured in a short sentence: "The political economy of socialism is fundamentally a science about the optimally functioning economic system."[53] There is an inherent tendency toward optimality in socialism: the more optimally the socialist economy functions, the riper it is.

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51 Fedorenko, N. (1980), op.cit., 48.

52 Not only is this dilemma not resolved, but it is even not addressed in the latest exposition of the political economy of SOFE, which came out after this monograph had been finished. See *Vvedenie v teoriju i metodologiju sistemy optimal'nogo funkcionirovanija socialističeskoj ekonomiki* (1983).

53 Šatalin, S. (1982), op.cit., 16.

Here optimality basically means the ability to use economic resources. Wider social and ecological considerations, Šatalin has argued, are outside the competence of economists and are better left as constraints.[54] Šatalin, contrary to Maiminas, still sticks to the idea of society as a supersystem of economy. His analysis is economic, not socio-economic in the latter's sense.

For Šatalin, SOFE is an axiomatic-normative theory. It also is the political economy of socialism, or at least its foundations. The political economy of socialism, Šatalin writes, should become a "strict science based on proofs" with no room for "unfettered law-creating where theorems with no proof are put forward as axioms". Basically, he asserts, it is already known what the axioms there should be — his list is the same as Fedorenko's with one addition: all production units must have same conditions of activity — and how the production relations are derived from them. The fundamentals of political economy, therefore, already exist.

Optimality, as noted above, is for Šatalin a tendency immanent to socialism, but production relations that are really adequate to socialism only come into being in the optimum regime, which "may only be established as the result of implementing a system of models of the optimally functioning socialist economy".[55] This must be stressed. In early SOFE several writers concluded that the possibility of reaching optimality by correctly organizing the interdependent activities of economic units had been proved, mostly by general equilibrium analysis. Reaching the optimum regime was, therefore, seen as a task of constructing an optimal economic mechanism, somewhat like perfect competition. Compared to these ideas, the Fedorenko of 1980 was soberer. His basic conclusions regarding the economic mechanism were as follows: 1 necessity of a global optimality criterion, 2 impossibility of detailed direct central planning, 3 necessity of a hierarchic structure of management with operative independence on the lower level, 4 necessity of basing local criteria on the global one.[56] Compared to the compositional theories inspired by general equilibrium analysis, this decompositional approach can only be characterized as more centralized. Too much decentralization, Fedorenko pointed out, is not any better than too little.

Šatalin's stand is even clearer. The optimum regime, he asserts, can only come about by implementing an optimal plan using a system of models. There can be no optimality without an optimal plan. This, he maintains, is not an axiom but a theorem. The explicit target here is V. F. Pugačev's book of 1968.

Having given such importance to the optimal plan, Šatalin must pay special attention to problems of the global criterion. He still sees no alternative to maximizing social utility, defined over consumption goods, free time included. The fact that a method of measuring utility does not exist is not a fundamental problem. Social

54 Šatalin, S. (1981a), op.cit.

55 Šatalin, S. (1982), op.cit., 33.

56 Fedorenko, N. (1980), op.cit., 129—130.

utility does exist even if it cannot be measured. Problems of measurement only emphasize the need for more research in themes like private and public consumption, programme-goal management, social efficiency and social indicators. In an article Šatalin has laid much responsibility for the problems of measurement at the door of the incorrect theories. The idea that goals are endogenous, he claims, has diminished interest in the studies of consumption.[57] So far goal setting must be largely subjective, but "it is the task of economic theory, working hand in hand with other sciences studying the society, to enlarge the element of objectivity, "scientificity" in formulating the criterion of optimality, in making decisions on managing economic development".[58]

The maximization of social utility is for Šatalin the essence of socialism, as shown by the basic law, and his foremost criterion in judging the work of other economists is how fully they have appreciated this. For instance, Novožilov, though admitted to be a most important founder of optimal planning, is criticized for his approach of minimizing labour inputs. This is basing optimal planning on the theories preceeding it (see above, p. 114). Here Šatalin's opinion has not changed since 1969. In much the same way Aganbegjan and Bagrinovskij, as well as Fedorenko, receive little sympathy for their attempts to redefine Marx's theory of value in a way consistent with the optimality approach. Prices in the optimum regime, Šatalin stresses, can only be based on social utility. It is central to socialism. Here Šatalin obviously has a sound Marxist idea. The labour theories of value of classical economists and Marx were, no doubt, based on the idea of a working society. The problem of Marx's theory, at least, was how this fact asserts itself in a capitalist society. *Mutatis mutandis*, if we accept Šatalin's basic axiom, his stand has much to recommend itself from the point of view of Marxist orthodoxy. But certainly, even then, the problems of defining social utility are a heavy handicap, and talking of a specific socialist form of socially necessary labour time is convenient propagandistically.

In 1974—75 the interpretation given by Šatalin et al. on commodity-money relations in socialism was fundamentally centralistic. His later discussion perhaps clarifies the matter, but does not change his basic approach. Now Šatalin makes a distinction between "commodity-money relations" (or commodity production) and "commodity-money forms". C-M relations are a result of the independence of production units. They are elements of spontaneity and are the antipode of planning in socialism. C-M forms, on the other hand, are tools of implementing planning.

Having listed six strict conditions ("every unit decides upon what and how to produce", "prices are set by production units", etc.) for the existence of C-M relations, Šatalin concludes that Soviet associations are not commodity producers.

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57 Šatalin, S. (1981a), op.cit.

58 Šatalin, S. (1982), op.cit., 213.

Therefore, neither does the law of value rule in the Soviet Union, not even in consumption goods markets, though consumers are sovereign. They are sovereign within the limits set by the state, Šatalin points out, and the existing degree of independence in decision making "may be connected with, among other things, the fact that society for the time being knows the laws of the sphere of consumption badly, without which enlargening the sphere of planning could only by a formal bureaucratic act".[59] Šatalin's hint is obvious: increasing research gives the possibility of more regulation of markets. He does add, though, that this knowledge can never be perfect.

The example of consumption goods markets is relevant to understanding Šatalin's general point of view. There are questions that C-M relations, that is markets, handle more competently than planning, given the state of our ignorance. Using markets in these cases leads the economy nearer to the optimum. Trying to plan too much leads to difficulties, and at the moment Šatalin is for more decentralization. But in the long run, as the knowledge of economic mechanisms increases, planning will increase in importance. This also means more stress on vertical relations, through which planning primarily is implemented. Šatalin's general conclusion, therefore, is the same in 1982 as it was in 1975. The optimality approach implies more decentralization in the short run, yet more centralization in the long run. This conclusion is, as has been pointed out above, a controversial one. As Nikolai Petrakov wrote in his review of Šatalin's book concerning this point, in Petrakov's opinion "it's just the opposite".[60]

SOFE continues to be a controversial approach among Soviet economists,[61] but its conclusions are also controversial among the sofeists. The debates go on.[62]

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59 Ibid., 238.

60 Petrakov, N. (1983b): Review of Šatalin, S. (1982): *Funkcionirovanie ... EMM* XIX:4, 738—742.

61 See Korjagin, A. (1983): O nekotorykh traktovkakh optimizacii socialističeskoj ekonomiki. *VE* 7, 60—72 for a recent criticism seeing no difference between the recent books of Fedorenko and Šatalin. Korjagin also repeats the by now well-known objections concerning the objectivity of economic laws, social utility and so on.

62 A new upsurge of discussions around SOFE might be foreseen because of three reasons. The present fundamentals of SOFE are contradictory, some of its problems were pointed out in the Party criticism of economics in 1983, and a series of monographs under the general title "Questions of the optimal planning and management of the socialist economy" is just being published. Five volumes have already come out, and still more are coming. Together, they will offer an overview of CEMI and some other work in the field.

CONCLUSION

The first major conclusion of this study is obvious: the conception of the Mathematical Revolution in Soviet economics is in need of some reconsideration. It is true, naturally, that a remarkable change did take place in Soviet economics in the 1960's with the rebirth of mathematical economics in the USSR, but the conception used by Zauberman and Grossman (see Introduction, above) needs serious qualification. First of all, neither the Marxist-Leninist Political Economy of Socialism (PES) nor Soviet mathematical economics is a monolith. Indeed, they are better seen as intrinsically changing conglomerates. It is true that the debates of the 1960's were largely waged along the lines defined by this division, but a broader perspective shows other essential factors, too. By the late 1970's several problems first raised (or reraised) by the mathematical economists were prestigiously placed into the focus of PES. This conditions the idea of PES as "hermetically closed". The optimal planning approach of Kantorovič — the central topic of the early controversies — was criticized as early as the turn of the 1960's by mathematical economists and has been later largely replaced by more complex approaches. The recent writings of Fedorenko show to what lengths the search for political economic orthodoxy of SOFE — to a degree always present — has been taken. At the same time, comparing the latest monographs of Fedorenko and Šatalin shows the wide differences in the present-day conceptions of these two pioneers of SOFE. The debates between Val'tukh and Petrakov, on the other hand, show the controversiality of the SOFE normative approach among mathematical economists in general.

One should, therefore, question the usefulness of using only the bipartition PES — mathematical economics in analysing change in Soviet economics. The distance between a CEMI mathematician analysing turnpike theorems and an Institute of Economics scholar tracing the Leninist origins of the Basic Economic Law of Socialism is certainly huge, but most Soviet economists belong to neither of these groups. In addition to the heterogeneity of the "two camps" distinguished by the theoreticians of the Mathematical revolution, one must remember that most Soviet economists pursue "concrete economics" of one kind or another. The use or nonuse of mathematics is hardly a decisive issue there. Among the noted modern economists of the Soviet Union, many — the Fedorenkos, Aganbegjans, Šatalins, Petrakovs and others — seem to be fluent both in mathematical economics and political economy. This

is hardly just a question of camouflaging, like Katsenelinboigen implies.[1] PES is — among other things — the language best known by most Soviet economists and, as such, it is a natural vehicle of discussion and persuation.

The fact that PES as well as mathematical economics has been in a state of flux is perhaps worth emphasizing. Whatever the limitations of economic discourse in the USSR,[2] the variety of opinions — real and scholastic — is wide enough to make a comprehensive overview of them impossible in a single study. Instead, this study has concentrated upon one school of Soviet economics, SOFE. It opens an intriguing window into the Soviet ideological and scholarly landscape. SOFE is an outgrowth of early Soviet mathematical economics, but also claims to be founded upon PES. Therefore, it provides exceptionally suitable means for following the changes in Soviet economics.

Perhaps the single most interesting feature of SOFE is its normativeness. By defining socialism as it should be, SOFE purports to present a comprehensive strategy of economic reform. Early sofeists believed the possibility of building socialism into an optimal regime to be the most important difference between it and capitalism.

The intrinsic reformism of SOFE is in profound contradiction with Stalinist PES. For PES, economic laws must be found in "reality" and correspond to it. The position of SOFE is more complex. It is to be written primarily in terms of what should be, but to avoid being purely wishful thinking, the laws of optimality are claimed to be tendencies immanent to really existing socialism. It is the second major conclusion of this study that this proposition is the result of a dilemma. This dilemma is immanent to the situation in which SOFE finds itself.

In theory, PES stands for a correspondence theory of truth: its propositions should correspond to objective economic laws. But in fact — as Šatalin and others have pointed out in Soviet literature — PES has no method of distinguishing between true and false sentences. This is the most important reason making PES a pseudo-science. Given this scholarly environment, SOFE has had two possibilities: either to accept or to reject PES as a starting-point. Recently — as is shown by the literature surveyed above — it has decided to follow the first possibility to an ever increasing degree. In this way, SOFE is able to gain in acceptability and also scores some debating points in Soviet controversies. But, at the same time, the decision — or perhaps simply necessity — of relying upon a pseudoscience hardly enhances the scientific status of SOFE.

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1 Katsenelinboigen, A. (1980): *Soviet Economic Thought and Political Power in the USSR.* Katsenelinboigen does take up other aspects, too.

2 "The situation in economics may be better than in philosophy or history, but the prospect of genuine open inquiry is still remote. A great many interesting and important articles remain unpublished because of censorship, while numerous books appear only after extensive cuts have been made. Many writers find it easier to stay silent. Much statistical data remain secret, inaccessible even to experts." Medvedev, R. (1975): *On Socialist Democracy,* 232.

If SOFE had decided not to rely upon PES, it would have had three logical possibilities. The first one would be to adopt an instrumentalist conception of science instead of the realist approach now upheld. This would, however, be a major deviation from Soviet social science standards. Furthermore, it is difficult to see how could an appealing normative strategy be based upon instrumentalism. The first possibility after having decided not to rely upon PES is thus effectively blocked, in explicit methodology at least.[3]

The second possibility open to a non-PES SOFE would be the road of Tinbergenian welfare economics: to argue for an non-social and non-historical conception to be realized in any society, the socialist one among them. This was the possibility adopted by Kacenelinboigen's group in the 1960's. Later this approach was abandoned within SOFE because of its utopian technical character. Similar arguments against the Tinbergian approach have been voiced in Western literature.[4]

The third possibility open to a non-PES SOFE would be to argue for a realist normative scientific approach immanent to socialism, different from PES. The history of SOFE so far gives no reason to believe in the practical possibility of this road. In fact, the developments surveyed in this monograph are the prime examples corroborating the view arguing for the impossibility of creating a normative theory of an optimal economy in general and of optimal socialism in particular.[5] One may believe in "progress", but to claim that optimality — or perfection — is immanent to any society remains an unprovable claim.

Our second main conclusion means that deciding to create foundation in PES for SOFE might not be seen simply as camouflaging, though this element is not to be excluded, either. Obviously, the less importance laid upon the canons of realism, the more weight the latter element gains.

The discussion above implies our third major conclusion. SOFE has not developed

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[3] It might be objected that what is important is the implicit methodology actually followed in research and which might well differ from the explicit methodology expressed in forewords and political economic exercises. Theoretically at least, such a possibility exists. But several points should be noted. The realist methodological stand — in addition to being quite generally regarded as being reasonable — has been explicitly adhered to in SOFE with remarkable consistency. As far as Soviet economics is taken to be that what Soviet economists write, it simply cannot be bypassed. Any allusions to a different methodological stand — though they do exist — are few. Furthermore, relativist admissions of the kind "different theories show us reality from different angles" are as easily seen as products of a failed realism as expressions of an implicit instrumentalism. There is no documented evidence of such a hidden methodological agenda existing in the usually very crude methodological writings of Soviet mathematical economists. All in all, not only is the standard of criticism here adopted the only one possible for an outsider, but it is also defensible on general grounds.

[4] Ellman, M. (1980): Against Convergence. *Cambridge Journal of Economics* IV:3, 199—210 discusses Tinbergen's theory of the optimal regime in the connection of the convergence theory based upon it and summarizes several fundamental arguments against this approach.

[5] For a classical statement of this view see Kornai, J. (1980): The Dilemmas of a Socialist Economy: the Hungarian Experience. *Cambridge Journal of Economics* IV:2, 147—157.

arguments sustaining its pose as a realist normative theory. Either the stress upon realism is not sincere or SOFE must be judged a theoretical failure. It is quite generally argued in philosophy in science that the requirements of realism are reasonable.

The fourth major conclusion, not a new one, concerns the historical background of SOFE. Classical Marxism contains two ways of looking at the economy of the future socialist economy. Above, the prevalent one was called Classical. For it, socialism is about accumulation and growth of productive forces. The second one was called Neoclassical. Rational planning for needs would be the essence of socialism according to this view. While the Classical approach was growth oriented, the Neoclassical approach is about efficiency.

Basically, both of these approaches were based on the idea of socialism as a continuation of trends discernable in capitalism. In the case of the Classical approach, this is obvious and well-known. But it is also clear in the case of the Neoclassical approach. As shown by Max Weber,[6] it is just capitalism that makes goal-rational calculation prevalent. In this light, the problematique of both the Classical and the Neoclassical approaches were determined by capitalism, be it good or bad.[7]

The Stalinist revolution suppressed the Neoclassical approach and included only a few elements of the Classical approach in PES. But the fact that the former approach had existed in the Soviet Union — and had had important proponents from Bukharin to Jarošenko — was a factor contributing to the rise of mathematical economics and also partly determining the form of the ensuing debates. This is a major conclusion of this study. A minor corollary is that the much-discussed problem of Western vs. Socialist and Soviet influences on mathematical economics in the USSR is fundamentally misfocussed.

A fifth major conclusion — perhaps well-known already — is in the characterization of the status of objective economic laws in PES. They are not fundamentally statements of aims and goals of policies, as is sometimes argued. Their basic role is in supporting the conservative conclusion of Really Existing Socialism as real socialism. The first chapters of this monograph have surveyed the development leading up to this conclusion in some detail. It is true that PES has always had some normative or even utopian elements, but any emphasis put upon them is certainly the product of the post-Stalinist period. The controversies between an objectivist PES and normative SOFE were largely controversies between conservatism and reformism. But certainly, this is only true "largely". PES can be used to argue for reforms (witness the discussions on the Basic Economic Law of Socialism)

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6 Weber, M. (1956): *Wirtschaft und Gesellschaft.*

7 The inappropriateness of the efficiency approach to understanding really existing socialism has been most thoroughly argued by the Budapest school of Hegedus, Heller, Markus and others.

and the reformism of SOFE does have serious theoretical problems, characterized in conclusion two above.

While these conclusions may be seen as the major ones reached in this study, they are not the only ones. Several minor conclusions might be enumerated. Thus, the theme of Moshe Lewin in his *Political Undercurrents in Soviet Economic Debates* has been given some more substance by showing the re-emergence of not only Bukharinist but also Preobraženskian ideas with the partial re-emergence of the economy in the Soviet Union. Pointing out the differences of Nemčinovian social engineering and SOFE should show that the directions of Soviet economics were by no means predetermined in the early 1960's. The importance of calls for useful economics — and of the promises for one — is another point worth emphasizing even now.

This work has not tried to assess the contribution of SOFE to "world economic science" or to Soviet economic practice. But probably both of these contributions should be judged as being quite modest. Thus, in the latter respect it still seems that there really is no contradiction between what Hough and Medvedev concluded more than ten years ago: proposals for change in policies are made, but the contribution to policies is small.[8] What change there may have been in this respect seems to have been quantitative, not qualitative. As Janos Kornai has concluded: data processing and mathematical planning methods are not leading to a "computopia", but — at best — to a "modest extension of rationality".[9]

This study has not analysed all the questions that should be taken into account before trying an overall assessment of SOFE. It has been critical of SOFE, but has not tried to find out the "truth" of the problems covered by SOFE. Furthermore, this study has not included a comparative analysis between economics in the Soviet Union and other socialist countries (though some fundamental differences have been pointed out). Neither has it assessed the normative potentials of neoclassical economics (though the example of SOFE should tell something of importance in this respect), one important root of SOFE. Furthermore, what most analysts would regard as being the real problems of the Soviet economy — deficits, disproportions, declining growth rates, the inability to reform and so on — have been above

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8 "In the last ten years virtually all conceivable proposals for incremental change in party policy have been aired in the Soviet press." Hough, J. (1972): The Soviet Union: Petrification or Pluralism?, 27. "The fact that the social sciences play an extremely insignificant role in the formation of policy and the methods of governing is a denial of the principles and ideals of scientific communism." Medvedev, R. (1975): op.cit. Kushnirsky, a person with long experience in Soviet planning, recently restated Medvedev's conclusion: "In our view, the role of economic science in economic planning and decision making is insignificant." Kushnirsky, F. (1982): *Soviet Economic Planning*, 1965—1980.

9 Kornai, J. (1975): *Mathematical Planning of Structural Decisions*, 523—525.

almost bypassed just by pointing out that because of its normativeness, SOFE is badly equipped to analyse them.[10]

All these questions — and perhaps some more — would need assessment before one could conclude what requirements might conceivably be placed upon a Soviet school of economics of socialism. But even then, having in mind the material surveyed above, it is difficult not to judge SOFE as a failure. It has really not shown what an optimal socialist society might look like. It has certainly not provided for a strategy of transition to such a state, nor has it persuaded Soviet decision-makers of the need and possibility of such a transition. Furthermore, it has not provided us with an economic theory of really existing socialism. This is obviously impossible for a normative theory like SOFE. Positive results can and have been pointed out, but the gulf between the original promises and the goods finally delivered is huge indeed. Whether a different approach would have done any better, is another question.

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[10] I have analyzed these questions elsewhere. Sutela, P. (1983): *Principles of the Soviet Economy*; Sutela, P. (1984): Soviet Economic Development, 1965—1982. *TTT:n Katsaus* XII:1, 39—47.

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